BEFORE THE PUBLIC UTILITIES COMMISSION
OF THE STATE OF COLORADO

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IN THE MATTER OF ADVICE NO. 993-GAS OF PUBLIC SERVICE COMPANY OF COLORADO TO REVISE ITS COLORADO PUC NO. 6-GAS TARIFF TO INCREASE JURISDICTIONAL BASE RATE REVENUES, IMPLEMENT NEW BASE RATES FOR ALL GAS RATE SCHEDULES, AND MAKE OTHER PROPOSED TARIFF CHANGES EFFECTIVE FEBRUARY 24, 2022	**)**	**PROCEEDING NO. 22AL-_____G**

DIRECT TESTIMONY AND ATTACHMENTS OF ANN E. BULKLEY

ON

BEHALF OF

PUBLIC SERVICE COMPANY OF COLORADO

January 24, 2022

BEFORE THE PUBLIC UTILITIES COMMISSION
OF THE STATE OF COLORADO

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DIRECT TESTIMONY AND ATTACHMENTS OF ANN E. BULKLEY

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DIRECT TESTIMONY AND ATTACHMENTS OF ANN E. BULKLEY

I. INTRODUCTION AND QUALIFICATIONS

Q. PLEASE STATE YOUR NAME AND BUSINESS ADDRESS.

A. My name is Ann E. Bulkley. I am a Principal at The Brattle Group ("Brattle"). My business address is One Beacon Street, Suite 2600, Boston, Massachusetts 02108.

Q. ON WHOSE BEHALF ARE YOU SUBMITTING THIS DIRECT TESTIMONY?

A. I am submitting this Direct Testimony on behalf of Public Service Company of Colorado ("Public Service" or the "Company"), a Colorado corporation and wholly-owned subsidiary of Xcel Energy Inc. ("Xcel Energy"). Xcel Energy is a registered holding company that owns several electric, natural gas, and steam utility

operating companies, a regulated natural gas pipeline company, and three transmission service companies.[1]

Q. PLEASE DESCRIBE YOUR BACKGROUND AND PROFESSIONAL EXPERIENCE IN THE ENERGY AND UTILITY INDUSTRIES.

A. I hold a Bachelor's degree in Economics and Finance from Simmons College and a Master's degree in Economics from Boston University, with over 25 years of experience consulting to the energy industry. I have advised numerous energy and utility clients on a wide range of financial and economic issues with primary concentrations in valuation and utility rate matters. Many of these assignments have included the determination of the cost of capital for valuation and ratemaking purposes. My resume and a summary of testimony that I have filed in other proceedings are included as Attachment AEB-1.

[1] Xcel Energy is the parent company of four utility operating companies: Public Service; Northern States Power Company, a Minnesota corporation; Northern States Power Company, a Wisconsin corporation; and Southwestern Public Service Company, a New Mexico corporation. Xcel Energy's natural gas pipeline company is WestGas Interstate, Inc. Through a subsidiary company, Xcel Energy Transmission Holding Company, LLC, Xcel Energy also owns three transmission-only operating companies: Xcel Energy Southwest Transmission Company, LLC; Xcel Energy Transmission Development Company, LLC; and Xcel Energy West Transmission Company, LLC, all of which are subject to Federal Energy Regulatory Commission jurisdiction.

II. PURPOSE AND OVERVIEW OF TESTIMONY

Q. WHAT IS THE PURPOSE OF YOUR DIRECT TESTIMONY?

A. The purpose of my direct testimony is to provide the Colorado Public Utilities Commission ("Commission") with a recommendation regarding Public Service's requested return on equity ("ROE") for its natural gas distribution business.[2] I also provide an assessment of the reasonableness of the proposed capital structure to be used for ratemaking purposes. In order to develop my ROE recommendation, I applied the Constant Growth Discounted Cash Flow ("DCF") model, the Capital Asset Pricing Model ("CAPM") and Empirical Capital Asset Pricing Model ("ECAPM"), and the Bond Yield Plus Risk Premium approach to a proxy group of natural gas distribution utilities that are risk-comparable to Public Service.

I also discuss Public Service's proposed regulated capital structure in support of the testimony of Company witness Mr. Paul A. Johnson. I compare Public Service's proposed capital structure to the capital structures of my proxy group companies and conclude that the Company's proposed capital structure for ratemaking purposes is reasonable.

My analyses and recommendations are supported by the data presented in Attachments AEB-2 through AEB-13, which have been prepared by me or under my supervision.

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

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

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[2] Throughout this testimony, I use the terms ROE and cost of equity synonymously.

- Section III provides a summary of my analyses and conclusions;
- Section IV reviews the regulatory guidelines pertinent to the development of the cost of capital;
- Section V discusses current and prospective capital market conditions and the effect of those conditions on Public Service's cost of equity;
- Section VI explains my selection of a proxy group of natural gas distribution utilities;[3]
- Section VII describes my analyses and the analytical basis for the recommendation of the appropriate ROE for Public Service;
- Section VIII provides a discussion of specific business and financial risks that have a direct bearing on the ROE to be authorized for Public Service in this case;
- Section IX discusses Public Service's capital structure as compared with the capital structures of the utility operating company subsidiaries of the proxy group companies; and
- Section X presents my conclusions and recommendations.

[3] The gas distribution companies that are included in the proxy group are included in the Value Line natural gas distribution company business segment.

III. SUMMARY OF ANALYSES AND CONCLUSIONS

Q. PLEASE SUMMARIZE THE KEY FACTORS CONSIDERED IN YOUR ANALYSES AND UPON WHICH YOU BASE YOUR RECOMMENDED ROE.

A. My analyses and recommendations considered the following:

- The United States ("U.S.") Supreme Court's *Hope* and *Bluefield* decisions,[4] which established the standards for determining a fair and reasonable authorized ROE, including consistency of the authorized return with other businesses having similar risk, adequacy of the return to ensure access to capital and support credit quality, and the necessity for the end result to lead to just and reasonable rates;

- The required ROE should be a forward-looking estimate; therefore, the analyses supporting my recommendation rely on forward-looking inputs and assumptions (*e.g.*, forecasted growth rates in the DCF model, projected interest rates and a forward-looking market risk premium in the CAPM);

- The effect of current and prospective capital market conditions on the ROE estimation models and on investors' return requirements; and

- Public Service's business risks relative to the proxy group companies and the implications of those risks in arriving at the appropriate ROE.

Q. HOW DID YOU DEVELOP YOUR RECOMMENDED ROE FOR THE COMPANY?

A. I have relied on the results of several analytical approaches to estimate Public Service's cost of equity based on a proxy group of publicly-traded natural gas distribution utility companies. I have relied on the results of multiple ROE estimation models considering that, as discussed in Section V herein, current and forward capital market conditions are projected to affect the inputs and

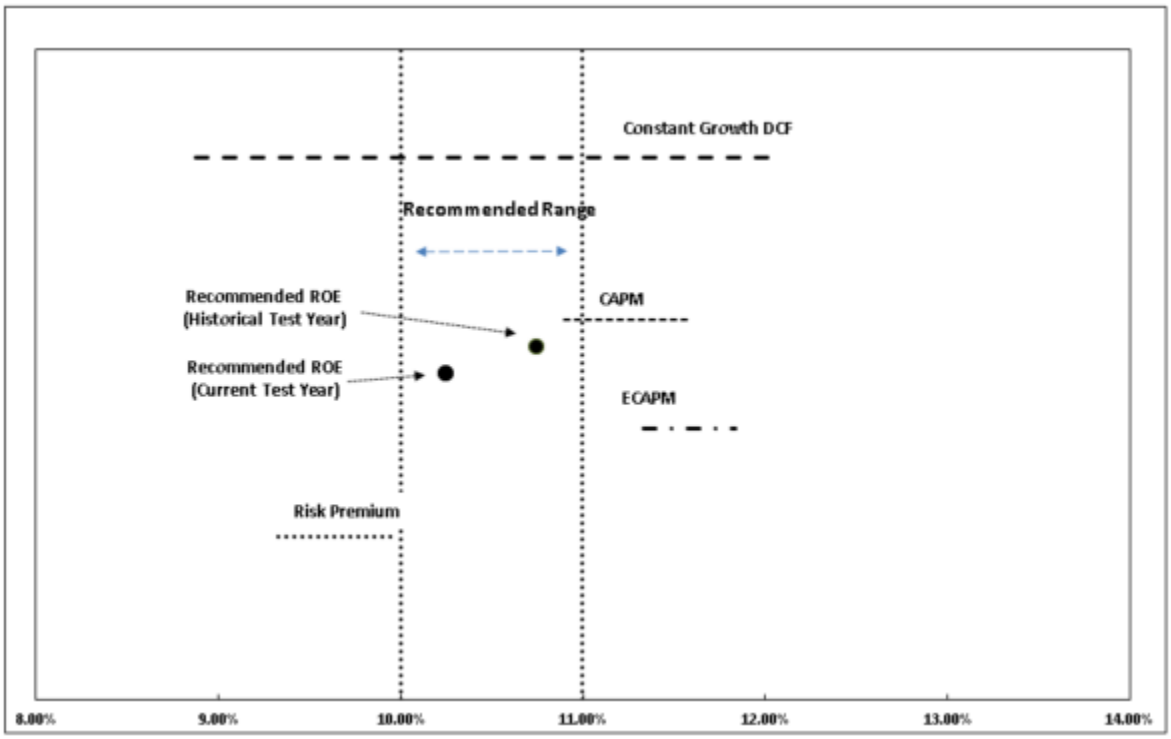
[4] *Bluefield Waterworks & Improvement Co. v. Pub. Serv. Comm'n of West Virginia*, 262 U.S. 679, 692-93 (1923); *Fed. Power Comm'n v. Hope Natural Gas Co*., 320 U.S. 591, 603 (1944).

assumptions of the ROE estimation models over the period during which the Company's rates will be effective.

Q. WHAT ARE THE RESULTS OF YOUR ROE ESTIMATION MODELS?

A. Figure AEB-D-1 summarizes the range of results of my analyses.

Figure AEB-D-1: Summary of Analytical Results[5]



As shown in Figure AEB-D-1, the range of results produced by the ROE estimation models is relatively wide. While it is common to consider multiple models to estimate the cost of equity, it is particularly important when the range of results varies considerably across methodologies. As I will discuss, capital market conditions are expected to affect the results of the ROE estimation models based

[5] The range of results of the Constant Growth DCF model in Figure AEB-D-1 reflects both the median and mean as the measure of central tendency.

on historical or current data. Specifically, utility stocks are expected to underperform as the economy continues to emerge from the pandemic, thereby increasing dividend yields on utility stocks going forward, and interest rates are expected to increase from the relatively low levels resulting from the accommodative monetary policy implemented to assist the U.S. economy since the start of the pandemic.

Q. WHAT IS YOUR RECOMMENDED ROE FOR THE COMPANY IN THIS PROCEEDING?

A. Based on the analytical results presented in Figure AEB-D-1, the projected capital market conditions, and the levels of regulatory, business, and financial risk faced by Public Service relative to the proxy group, including the Company's history of earning less than its authorized ROE, I conclude that a ROE in the range from 10.00 percent to 11.00 percent is reasonable. Although the companies in my proxy group are generally comparable to Public Service, the Company's natural gas distribution business faces higher risk than the proxy group companies in several important respects. In order for Public Service to compete for capital on reasonable terms, those additional risk factors should be reflected in the Company's authorized ROE. In addition, the required ROE should be a forward-looking estimate. Therefore, the analyses supporting my recommendation rely on forward-looking inputs and assumptions (*e.g.*, projected growth rates in the DCF model and a forecasted risk-free rate and market risk premium in the risk premium analyses, which are the CAPM, ECAPM and Bond Yield Plus Risk Premium models). I conclude that a reasonable ROE for Public Service in this proceeding

is 10.25 percent using a current test year and 10.75 percent if a historical test year is used.

IV. REGULATORY GUIDELINES

Q. PLEASE DESCRIBE THE PRINCIPLES THAT GUIDE THE ESTABLISHMENT OF THE COST OF CAPITAL FOR A REGULATED UTILITY.

A. The U.S. Supreme Court's precedent-setting *Hope* and *Bluefield* cases established the standards for determining the fairness or reasonableness of a utility's authorized ROE. Among the standards established by the Court in those cases are: (1) consistency with other businesses having similar or comparable risks; (2) adequacy of the return to support credit quality and access to capital; and (3) the principle that the specific means of arriving at a fair return are not important, only that the end result leads to just and reasonable rates.[6]

Q. HAS THE COMMISSION PROVIDED SIMILAR GUIDANCE IN ESTABLISHING THE APPROPRIATE RETURN ON COMMON EQUITY?

A. Yes. The Commission follows the precedents of the *Hope* and *Bluefield* cases by acknowledging that utility investors are entitled to a fair and reasonable return. For example, the Commission has stated:

> To be consistent with sound regulatory economics and the standards set forth by the Supreme Court in the *Bluefield* and *Hope* cases, a utility's allowed ROE should be: (i) similar to that of other financially sound businesses having similar or comparable risk, (ii) sufficient to ensure confidence in the financial integrity of the utility, and (iii) adequate to maintain and support the credit of the utility, thereby enabling it to attract, on a reasonable cost basis, the funds necessary to satisfy its capital requirements so that it can meet the obligation to provide adequate and reliable service to the public.[7]

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[6] *Bluefield*, 262 U.S. at 692-93; *Hope*, 320 U.S. at 603.

[7] Proceeding Nos. 11AL-382E and 11AL-387E, Decision No. C11-1373, at ¶ 87.

Q. WHY IS IT IMPORTANT FOR A UTILITY TO BE ALLOWED THE OPPORTUNITY TO EARN A RETURN THAT IS ADEQUATE TO ATTRACT CAPITAL AT REASONABLE TERMS?

A. A return that is adequate to attract capital at reasonable terms enables Public Service to provide safe, reliable gas distribution service while maintaining its financial integrity. That return should be commensurate with returns required by investors elsewhere in the market for investments of equivalent risk. If it is lower, debt and equity investors will seek alternative investment opportunities for which the expected return reflects the perceived risks, thereby impairing Public Service's ability to attract capital at reasonable cost.

Q. WHAT ARE YOUR CONCLUSIONS REGARDING REGULATORY GUIDELINES?

A. The ratemaking process is premised on the principle that, in order for investors and companies to commit the capital needed to provide safe and reliable utility services, a utility must have the opportunity to recover the return of, and the market-required return on, its invested capital. Because utility operations are capital-intensive, regulatory decisions should enable the utility to attract capital at reasonable terms; doing so balances the long-term interests of the utility and its customers.

The financial community carefully monitors the current and expected financial condition of utility companies and the regulatory framework in which they operate. In that respect, the regulatory framework is one of the most important factors in both debt and equity investors' assessments of risk. The Commission's

order in this proceeding, therefore, should establish rates that provide Public Service with the opportunity to earn an ROE that is: (1) adequate to attract capital at reasonable terms; (2) sufficient to ensure its financial integrity; and (3) commensurate with returns on investments in enterprises with similar risk. To the extent Public Service is authorized the opportunity to earn its market-based cost of capital, the proper balance is achieved between customers' and shareholders' interests.

Q. DOES THE FACT THAT THE COMPANY IS OWNED BY XCEL ENERGY, A PUBLICLY-TRADED COMPANY, AFFECT YOUR ANALYSIS?

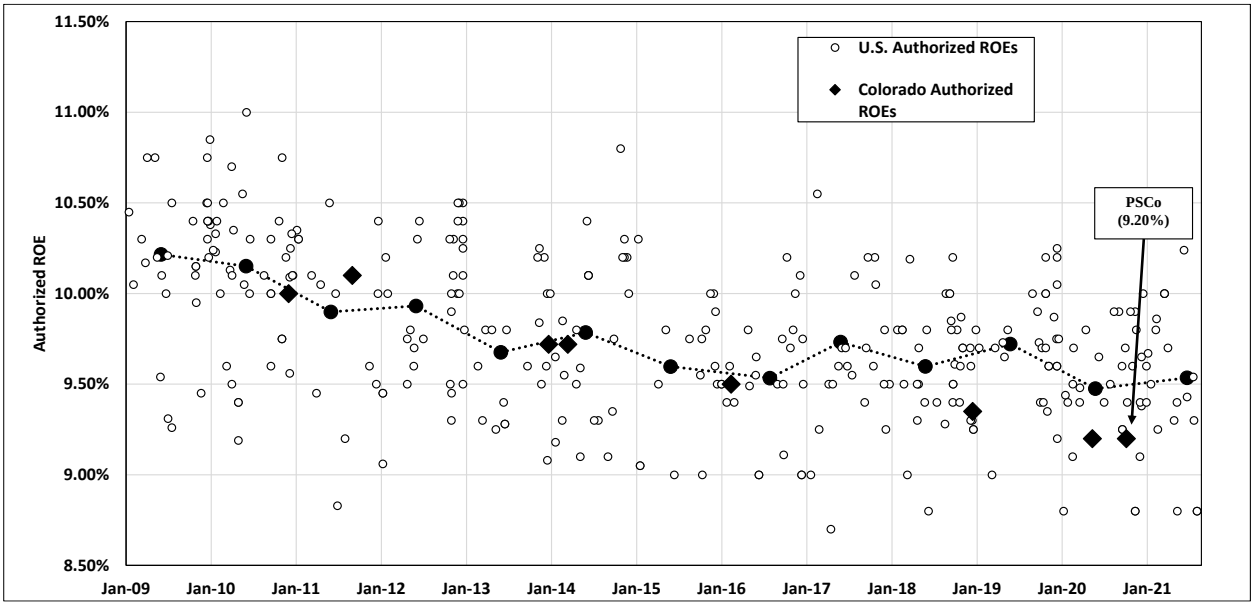
A. No. In this proceeding, consistent with stand-alone ratemaking principles, it is appropriate to establish the cost of equity for Public Service, not its publicly-traded parent, Xcel Energy. More importantly, however, it is appropriate to establish a cost of equity and capital structure that provide Public Service the ability to attract capital on reasonable terms, on a stand-alone basis, and within Xcel Energy.

Q. HOW DOES THE CURRENT AUTHORIZED ROE FOR PUBLIC SERVICE'S GAS DISTRIBUTION BUSINESS COMPARE TO THE AUTHORIZED RETURNS FOR OTHER GAS DISTRIBUTION COMPANIES?

A. As shown in Figure AEB-D-2, the authorized returns for natural gas companies in Colorado were consistent with the national average for natural gas utilities between 2009 and 2016; however, since that time, the authorized returns have been consistently below the national average, and in fact have been closer to the bottom of the range produced by the authorized ROEs from other state jurisdictions. The current authorized ROE for Public Service's Gas distribution business is 9.20

percent, which is low by national standards. By comparison, the average authorized ROE for gas distribution companies nationwide through December 31, 2021 was 9.54 percent.

Figure AEB-D-2: Authorized ROEs for Gas Distribution Companies[8]



This is important because, in order to attract capital on reasonable terms and conditions, Public Service must have an authorized return that is comparable to those available to investors in companies with comparable risk.

Q. ARE THE AUTHORIZED ROE AND EQUITY RATIO IMPORTANT TO CREDIT RATING AGENCIES?

A. Yes. The credit rating agencies consider the authorized ROE and equity ratio for regulated utilities to be very important for two reasons: (1) they help determine the cash flows and credit metrics of the regulated utility; and (2) they provide an

[8] Regulatory Research Associates.

indication of the degree of regulatory support for credit quality in the jurisdiction. Four years ago when the Tax Cuts and Jobs Act ("TCJA") was passed, in December 2017, the credit rating agencies identified concerns regarding the effects of tax reform on the cash flow metrics for regulated utilities. At that time, the rating agencies suggested that increases in authorized ROEs and equity ratios for regulated utilities would help alleviate the pressure on those metrics. While many jurisdictions, including Colorado, have addressed the accumulated deferred income tax balance that needed to be realigned as a result of tax reform, the effect on cash flow metrics has not been addressed. Furthermore, credit rating agencies have instituted negative ratings actions in reaction to regulatory commission decisions authorizing a cost of equity that is deemed to increase risk by reducing future cash flow.

For example, most recently, amendments made by the Arizona Corporation Commission ("ACC") in October 2021 to an Administrative Law Judge's recommended order in an Arizona Public Service Company ("APS") rate proceeding caused credit rating agencies to institute negative ratings actions. Specifically, the ACC recommended reducing the ROE for APS from 10.00 percent to 8.70 percent. Upon the announcement of those amendments, which were subject to a final ACC decision, Fitch downgraded the issuer default credit rating of APS from A to A-, and its parent, Pinnacle West Capital Corporation ("PNW") from A- to BBB+, citing heighted business risk.[9] On November 2, 2021, the ACC

[9] FitchRatings, "Fitch Downgrades Pinnacle West Capital & Arizona Public Service to 'BBB+'; Outlooks Remain Negative," October 12, 2021.

voted to establish APS's ROE at 8.70 percent. Subsequently, Moody's also downgraded APS from A2 to A3 and PNW from A3 to Baa1.[10] Moody's noted that the downgrade was a function "by the recent decline in Arizona regulatory environment following the conclusion of the utility's 2019 rate case as well as the organization's weakened credit metrics."[11]

[10] Moody's Investors Service, "Rating Actions: Moody's downgrades Pinnacle West to Baa1 and Arizona Public Service to A3," November 17, 2021.

[11] *Id*.

V. CAPITAL MARKET CONDITIONS

Q. WHY IS IT IMPORTANT TO ANALYZE CAPITAL MARKET CONDITIONS?

A. The ROE estimation models rely on market data that are either specific to the proxy group, in the case of the DCF model, or to the expectations of market risk, in the case of the CAPM. The results of the ROE estimation models can be affected by prevailing market conditions at the time the analysis is performed. While the ROE that is established in a rate proceeding is intended to be forward-looking, the analyst uses current and projected market data, specifically stock prices, dividends, growth rates and interest rates, in the ROE estimation models to estimate the required return for the subject company.

As discussed in the remainder of this section, analysts and regulatory commissions have concluded that current market conditions have affected the results of the ROE estimation models. As a result, it is important to consider the effect of these conditions on the ROE estimation models when determining the appropriate range and recommended ROE for a future period. If investors do not expect current market conditions to be sustained in the future, it is possible that the ROE estimation models will not provide an accurate estimate of investors' required return during that rate period. Therefore, it is very important to consider projected market data to estimate the return for that forward-looking period.

Q. WHAT FACTORS ARE AFFECTING THE COST OF EQUITY FOR REGULATED UTILITIES IN THE CURRENT AND PROSPECTIVE CAPITAL MARKETS?

A. The cost of equity for regulated utility companies is being affected by several factors in the current and prospective capital markets, including: (1) the dramatic

shifts in market conditions during 2020; (2) the economic recovery in 2021, the currently high inflation, the expectations for rising interest rates, and continued inflation in 2022; and (3) the effect of these changes on the assumptions used in the ROE estimation models. In this section, I discuss each of these factors and how it affects the models used to estimate the cost of equity for regulated utilities.

Q. DO RECENT ECONOMIC PROJECTIONS INDICATE THE EXPECTATION FOR A CONTINUED STRONG ECONOMIC RECOVERY IN 2022?

A. Yes. Economic data beginning in mid-2021 has been indicating the expectation for strong economic recovery and inflationary pressure in response to that recovery. The Federal Open Market Committee ("FOMC"), which is composed of twelve members including the Board of Governors of the Federal Reserve system and presidents of the Federal Reserve Banks, reviews economic and financial conditions, determines the appropriate stance for monetary policy and assesses the risks to its long-run goals of price stability and economic growth. The FOMC issued its Summary of Economic Projections in December 2021, where the FOMC's median projection for GDP growth from Q4 2021 to Q4 2022 is 4.0 percent.[12] Several months prior to the FOMC guidance, issued in December 2021, the Congressional Budget Office ("CBO") issued an update to its outlook on economic conditions on July 1, 2021. In that report, the CBO projected strong GDP growth for 2021 and beyond, and significant strength in overall economic conditions including:

[12] Federal Open Market Committee, Summary of Economic Projections at 2 (Dec. 15, 2021).

- Real GDP growth of 7.4 percent in 2021 and 3.1 percent in 2022, which is a significant change from the negative 2.4 percent growth rate in 2020;
- Inflation indicators at or above the 2.0 percent threshold in 2021 and continuing through 2031;
- Labor force expected to be restored to pre-pandemic levels in 2022; and
- Interest rates on federal borrowing increasing through 2031.[13]

These trends indicate strong economic recovery over the next year, with robust consumer spending expected.

Q. PLEASE SUMMARIZE THE MONETARY POLICY ACTIONS OF THE FEDERAL RESERVE IN RESPONSE TO THE COVID-19 PANDEMIC.

A. In response to the COVID-19 pandemic, the Federal Reserve:

- decreased the Federal Funds rate twice in March 2020, resulting in a target range of 0.00 percent to 0.25 percent;
- increased its holdings of both Treasury and mortgaged-back securities;
- started expansive programs to support credit to large employers – the Primary Market Corporate Credit Facility to provide liquidity for new issuances of corporate bonds; and the Secondary Market Corporate Credit Facility to provide liquidity for outstanding corporate debt issuances; and
- supported the flow of credit to consumers and businesses through the Term Asset-Backed Securities Loan Facility.

In addition, Congress passed the Coronavirus Aid, Relief, and Economic Security Act in March 2020, the Consolidated Appropriations Act, 2021 in December 2020 and the American Rescue Plan Act in March 2021, which included

[13] Congressional Budget Office, An Update to the Budget and Economic Outlook 2021 to 2031, July 2021.

$2.2. trillion, $900 billion and $1.9 trillion, respectively, in fiscal stimulus aimed at also mitigating the economic effects of COVID-19. These expansive monetary and fiscal programs mitigated the economic effects of the COVID-19 pandemic and are currently providing additional support as the economy recovers from the COVID-19 recession.

Q. ARE THERE INDICATIONS THAT THE FEDERAL RESERVE IS ENDING ITS ACCOMMODATIVE POLICY TOOLS THAT WERE USED TO SUPPORT THE ECONOMY DURING THE COVID-19 PANDEMIC?

A. Yes. At its December 15, 2021 meeting, the Federal Reserve decided to increase the pace of its taper of bond purchases in response to inflation exceeding its target of 2 percent for a sustained period of time. Beginning in January 2022, the Federal Reserve will reduce asset purchases of Treasuries by $20 billion and mortgage-backed securities by $10 billion on a monthly basis.[14] This change is double the initial plan outlined at the Federal Reserve's November 2, 2021 meeting which called for reducing asset purchases of Treasuries by $10 billion and mortgage-backed securities by $5 billion on a monthly.[15] At that time, the Federal Reserves' FOMC was forecasting three increases in the federal funds rate by the end of 2022,[16] which was a substantial increase from the one increase that was forecasted by the FOMC at the September 22, 2021 meeting.[17]

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[14] Federal Reserve, Press Release, (Dec. 15, 2021).

[15] Federal Reserve, Press Release, (Nov. 3, 2021).

[16] Federal Reserve, Summary of Economic Projections, (Dec. 15, 2021).

[17] Federal Reserve, Summary of Economic Projections, (Sept. 22, 2021).

Since December 2021, the Federal Reserve has indicated in a number of statements that it intends to respond to rising inflation with increases in interest rates. Most recently, on January 11, 2022, in a hearing before the Senate Banking Committee, Federal Reserve Chairman Powell stated that he expects inflation to persist into mid-2022. Further Chairman Powell noted that if inflation persists at high levels, the Federal Reserve will be prepared to respond by raising interest rates and beginning to taper bond purchases "sooner and faster" than in prior circumstances where there was a need to taper. In addition, he noted that the economy no longer required aggressive stimulus and that the Federal Reserve would start to revert to the interest rates maintained before the pandemic.[18]

Goldman Sachs recently noted that it expects the Federal Reserve to increase the federal funds rate four times in 2022 in response to rising inflation as opposed to the December 2021 projection of three increases by the Federal Reserve.[19] The former New York Federal Reserve President, William Dudley, suggested that the Federal Reserve may even need to raise rates five times in 2022.[20]

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[18] Barron's, Powell Says Balance Sheet Run-Off Maybe Later This Year, Inflation to Persist into Mid-2022, January 11, 2022.

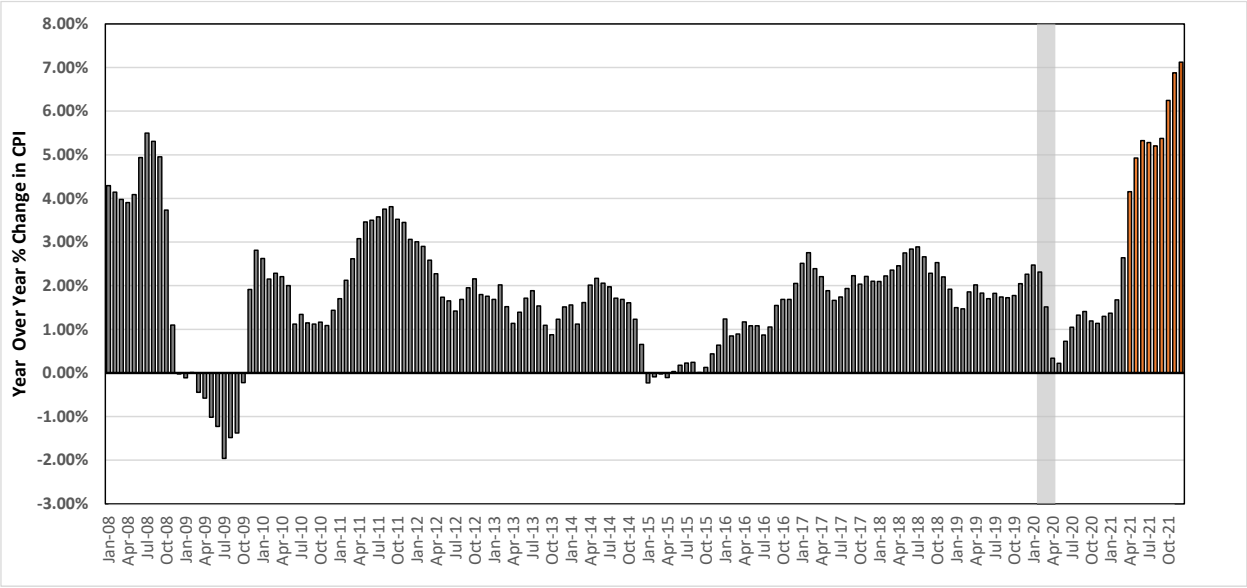
[19] Keown, Callum. "Bond Yields Keep Rising. Goldman Sachs Now Sees 4 Rate Hikes in 2022." Barron's, Barrons, 10 Jan. 2022, https://www.barrons.com/articles/things-to-know-today-51641808668?mod=BRNS_ENG_NAS_EML_BULLETIN_AUTO_NAH%3Fmod.

[20] Barron's, Powell's Senate Hearing Holds the Key for Markets. Expect the Unexpected, January 11, 2022.

Q. HOW SIGNIFICANT IS THE INCREASE IN INFLATION?

A. As shown in Figure AEB-D-3, the year-over-year ("YOY") change in the Consumer Price Index ("CPI") published by the Bureau of Labor Statistics has increased steadily in 2021 rising from 1.37 percent in January to 6.88 percent in November. The 6.88 percent YOY in the CPI in November 2021 is the largest 12-month increase since 1982 and is significantly greater than any level seen since January 2008. The Bureau of Labor Statistics indicated that the YOY change in CPI was 7.0 percent in December 2021.

Figure AEB-D-3: CPI YOY Percent Change, January 2008 – December 2021[21]



[21] Bureau of Labor Statistics, shaded area indicates the COVID-19 pandemic recession.

Q. WHAT ARE INVESTORS' EXPECTATIONS FOR INFLATION OVER THE NEAR-TERM?

A. The Federal Reserve appears not to consider inflation "transitory" based on statements made by Chairman Powell to the Senate Banking Committee, indicating that the central bank could taper more quickly than originally anticipated to respond to inflationary pressures.[22] Investors expect inflation to persist into 2022. For example, Goldman Sachs forecasts consumer price inflation excluding food and energy costs to still be above 4.0 percent when the Federal Reserve ends their tapering of bond purchases in 2022.[23] Similarly, respondents to the recent CNBC Fed Survey indicated the CPI is expected to rise 3.5 percent in 2022, which is an increase from the September Survey of 3.00 percent.[24] Finally, Kiplinger recently noted the following regarding inflation expectations over the near-term:

> Inflation at the end of next year should be about 2.7%, down from 6.6% at the end of 2021. It's expected that an easing of supply chain shortages next year will bring some price relief, especially to sky-high motor vehicle prices. But, these shortages are expected to only gradually resolve during 2022. Also, worker shortages may last longer than expected, keeping wage growth high and forcing businesses to pass some of those costs on to consumers. So, inflation should remain higher than its 1.7% average over the past ten years.[25]

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[22] Barron's, Powell's Senate Hearing Holds the Key for Markets. Expect the Unexpected, January 11, 2022.

[23] Kennedy, Simon, "Goldman Now Sees Fed Hiking Rates in July as Inflation Lingers." Bloomberg.com, Bloomberg, October 30, 2021; https://www.bloomberg.com/news/articles/2021-10-30/goldman-now-sees-fed-hiking-rates-in-july-as-inflation-lingers.

[24] Liesman, Steve. "Investors Expect a Faster Pace for Fed Rate Hikes, CNBC Survey Shows." CNBC, CNBC, 2 Nov. 2021, https://www.cnbc.com/2021/11/02/investors-expect-a-faster-pace-for-fed-rate-hikes-cnbc-survey-shows.html.

[25] Payne, David, "Inflation hits 30-year High," Kiplinger, November 11, 2021.

According to Kiplinger, the higher levels of inflation will likely result in the Federal Reserve increasing the federal funds rate in 2022 instead of 2023 as originally planned.[26]

Q. WHAT EFFECT WILL INFLATION HAVE ON LONG-TERM INTEREST RATES?

A. Inflation and the Federal Reserve's normalization of monetary policy will likely result in increases in long-term interest rates. Specifically, inflation reduces the purchasing power of the future interest payments an investor expects to receive over the duration of the bond. This risk increases the longer the duration of the bond. As a result, if investors expect increased levels of inflation, they will require higher yields to compensate for the increased risk of inflation which means interest rates will likely increase.

Q. WHAT HAVE EQUITY ANALYSTS SAID ABOUT LONG-TERM GOVERNMENT BOND YIELDS OVER THE NEAR TERM?

A. Several equity analysts have noted that they expect economic conditions to continue to improve and thus the yields on long-term government bonds to continue to increase through the end of 2022. As shown in Figure AEB-D-4, according to six different equity analysts, the yield on the 10-year Treasury Bond is expected to range from 1.75 percent to 2.50 percent in 2022, which is 17 to 92 basis points greater than the current 30-day average yield on the 10-year Treasury Bond as of November 30, 2021, of 1.58 percent.

[26] *Id.*

Figure AEB-D-4: Equity Analysts Forecast of the 10-year Treasury Yield[27]

Bank	10-year U.S. Treasury Yield	
	30-day Average as of November 30, 2021	2022 Forecast
Barclays	1.58%	1.75%
Morgan Stanley	1.58%	2.10%
Goldman Sachs	1.58%	2.00%
JP Morgan	1.58%	2.10%
Wells Fargo Investment Institute	1.58%	2.00% - 2.50%
Amundi	1.58%	1.80% - 2.00%

Specifically, Morgan Stanley recently noted the following regarding the expectation for long-term government bond yields in 2022:

> Continued strong growth in 2022, alongside receding but above-target inflation, keeps the Fed patient, yet gradually moving toward rate hikes, and keeps Treasury yields moving higher.[28]

Q. HAVE YOU CONSIDERED ANY ADDITIONAL INDICATORS THAT MAY IMPLY LONG-TERM INTEREST RATES ARE EXPECTED TO INCREASE?

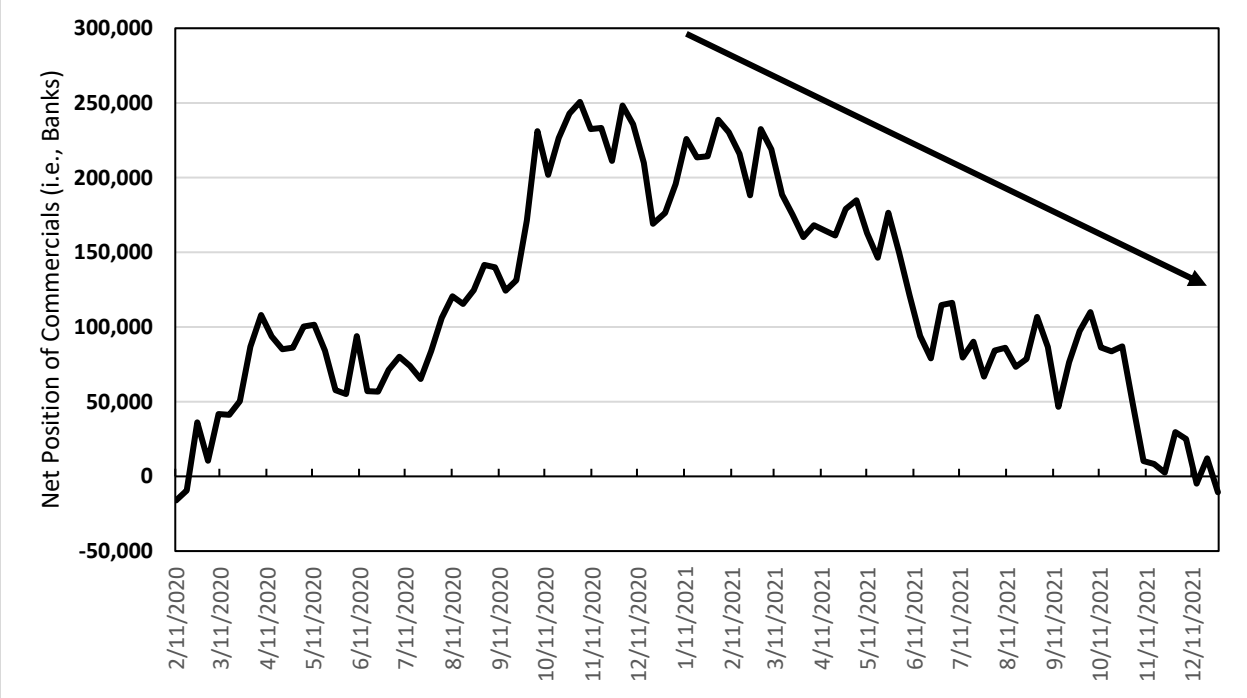
A. Yes, I considered the net position of commercials (*i.e.*, banks) in U.S. Treasury Bond futures contracts as reported in the Commitment of Traders Report produced by the Commodity Futures Trading Commission. A net position is defined as the total number of long positions in a futures contract minus the total number of short positions in a futures contract. A long position means that an investor agrees to purchase an asset in the future at a specified price today and therefore profits if

[27] "Factbox: Wall Street Forecasts for the U.S. Dollar and 10-Year Treasury Yield in 2022." Reuters, Thomson Reuters, November 18, 2021; https://www.reuters.com/markets/us/wall-street-forecasts-us-dollar-10-year-treasury-yield-2022-2021-11-18/.

[28] *Id*.

the price of the underlying asset increases. Conversely, a short position is when an investor agrees to sell an asset at a time in the future at a specified price today and profits if the price of the asset declines. Therefore, if banks are increasing the number of short positions and thus have a declining net position, the banks are assuming that the price of the asset will decline. As shown in Figure AEB-D-5, the net position of banks in U.S. Treasury Bonds has been decreasing since the end of 2020. Therefore, banks are forecasting a decrease in the price of long-term government bonds and thus are projecting that the yields (which are inversely related to the price) will increase over the near-term.

Figure AEB-D-5: Net Position of Commercials (*i.e.*, Banks) in U.S. Treasury Bond Futures Contracts[29]



[29] Commitment of Traders Report, as of December 31, 2021; https://www.cftc.gov/MarketReports/CommitmentsofTraders/HistoricalCompressed/index.htm

Q. ARE UTILITY SHARE PRICES CORRELATED TO CHANGES IN THE YIELDS ON LONG-TERM GOVERNMENT BONDS?

A. Yes, interest rates and utility share prices are inversely correlated, which means, for example, that an increase in interest rates will result in a decline in the share prices of utilities. For example, Goldman Sachs and Deutsche Bank recently examined the sensitivity of share prices of different industries to changes in interest rates over the past five years. Both Goldman Sachs and Deutsche Bank found that utilities had one of the strongest negative relationships with bond yields (*i.e.*, increases in bond yields resulted in the decline of utility share prices).[30] Charles Schwab also recently noted the inverse relationship between interest rates and utility share prices and concluded that the utility sector tends to underperform during periods of economic growth when interest rates are higher.[31]

Q. BASED ON THE INVERSE RELATIONSHIP BETWEEN INTEREST RATES AND UTILITY SHARE PRICES, DO EQUITY ANALYSTS EXPECT UTILITIES TO UNDERPERFORM IN THE EXPECTED INCREASING INTEREST RATE ENVIRONMENT?

A. Yes. Utilities, which are a defensive sector, have historically underperformed the market during periods of economic expansion. Equity analysts project that utilities are expected to continue to underperform the broader market as interest rates

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[30] Lee, Justina. "Wall Street Is Rethinking the Treasury Threat to Big Tech Stocks." Bloomberg.com, March 11, 2021; www.bloomberg.com/news/articles/2021-03-11/wall-street-is-rethinking-the-treasury-threat-to-big-tech-stocks.

[31] Charles Schwab, Schwab Sector Views: Too Early for Defensive Positioning, August 19, 2021.

increase. For example, in a recent article, Barron's conducted its Big Money poll of professional investors regarding the outlook for the next twelve months. The professional investors surveyed by Barron's selected the utility sector as the sector that will perform the worst over the next twelve months, thus they project utilities will underperform the broader market in 2022.[32]

Other equity analysts concur with this conclusion. Fidelity recently recommended underweighting the utility sector and noted that "[w]eak fundamentals and high valuations could be headwinds for utilities and real estate, especially if rates increase."[33] In its 2022 Outlook, Wells Fargo classified the utility sector as "most unfavorable" as economic growth continues to rebound and interest rates increase.[34] Finally, Charles Schwab has classified the utilities sector overall as "Underperform," noting negatives for the sector that include "interest rates are expected to recover from recent decline" and "economic recovery makes the sector less attractive, relative to other sectors."[35]

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[32] Jasinski, Nicholas. Stocks Are Still the Place to Be, Our Exclusive Big Money Poll Finds. Barron's, October 16, 2021; https://www.barrons.com/articles/stock-market-covid-economy-outlook-51634312012?mod=hpsubnav&tesla=y.

[33] Fidelity, "Q4 2021 sector scorecard," October 27, 2021.

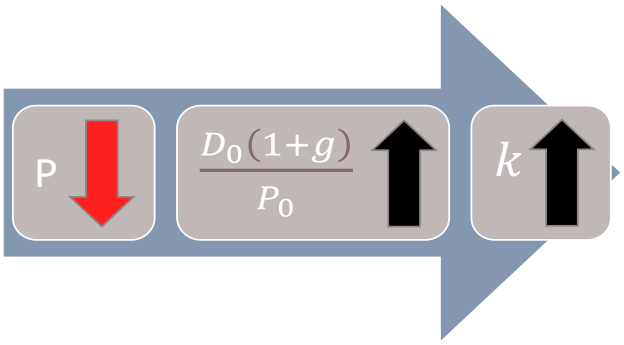
[34] Well Fargo Investment Institute, 2022 Outlook, December 2021.

[35] Charles Schwab, "Utilities Sector Rating: Underperform," November 18, 2021.

Q. WHAT IS THE SIGNIFICANCE OF THE INVERSE RELATIONSHIP BETWEEN INTEREST RATES AND UTILITY SHARE PRICES IN THE CURRENT MARKET RELATIVE TO THE COST OF EQUITY IN THIS PROCEEDING?

A. As discussed above, the economy is currently in the recovery phase of the business cycle, which is characterized by improving economic growth, increasing inflation, and increasing interest rates. If interest rates increase as expected, then the share prices of utilities will decline. If the share prices of utility stocks decline, then the DCF model, which relies on historical averages of share prices, is likely to understate the cost of equity. Figure AEB-D-6 summarizes the effect of price on the dividend yield in the Constant Growth DCF model.

Figure AEB-D-6: Effect of a Decline in Stock Prices on the Constant Growth DCF Model



A decline in utility stock prices going forward will increase the dividend yields of utility stocks and thus increase the estimate of the cost of equity that would be produced by the Constant Growth DCF model relative to the cost of equity currently produced by the Constant Growth DCF model that relies on historical stock prices. Therefore, this expected change in market conditions supports consideration of the range of ROE results produced by the mean to

mean-high DCF results since the mean DCF results would likely understate the cost of equity during the period that the Company's rates will be in effect. Moreover, prospective market conditions warrant consideration of other ROE estimation models such as the CAPM, ECAPM, Risk Premium and Expected Earnings which may better reflect expected market conditions. For example, two out of three inputs to the CAPM (*i.e.*, the market risk premium and risk-free rate) are forward-looking.

Q. WHAT ARE YOUR CONCLUSIONS REGARDING THE EFFECT OF CURRENT AND EXPECTED FUTURE CAPITAL MARKET CONDITIONS ON THE COST OF EQUITY FOR THE COMPANY?

A. Over the near-term, investors expect economic growth to continue to rebound and thus inflation and interest rates to increase. Investors' current expectations regarding the economy highlight the importance of using forward-looking inputs in the models used to estimate the cost of equity. Because the share prices of utilities are inversely correlated to the interest rates, an increase in long-term government bond yields will likely result in a decline in utility share prices, which is the reason a number of equity analysts expect the utility sector to underperform over the near-term. The expected underperformance of the utility sector relative to the broader stock market means that DCF models using recent historical data likely underestimate investors' required return over the period that rates will be in effect. This change in market conditions also supports the use of other ROE estimation models such as the CAPM, ECAPM, Risk Premium and Expected Earnings, which may better reflect expected market conditions. Inflationary pressures create an

additional risk factor, increasing the investor-required return and also creating incremental risk that the Company will be unable to earn the return that is authorized in this proceeding.

VI. PROXY GROUP SELECTION

Q. WHY HAVE YOU USED GROUPS OF PROXY COMPANIES TO ESTIMATE THE COST OF EQUITY FOR PUBLIC SERVICE?

A. In this proceeding, I am estimating the cost of equity for Public Service, a rate-regulated subsidiary of Xcel Energy. Since the ROE is a market-based concept and given the fact that Public Service's Gas distribution business does not make up the entirety of a publicly-traded entity, it is necessary to establish a group of companies that is both publicly-traded and comparable to Public Service in certain fundamental business and financial respects to serve as its "proxy" for purposes of estimating the cost of equity.

Even if Public Service's regulated natural gas distribution business made up the entirety of a publicly-traded entity, it is possible that transitory events could bias its market value over a given time period. A significant benefit of using a proxy group is that it mitigates the effects of anomalous events that may be associated with any one company. The proxy companies used in my analyses all possess a set of operating and financial risk characteristics that are substantially comparable to Public Service, and, therefore, provide a reasonable basis to derive and estimate the appropriate ROE for the Company.

Q. PLEASE PROVIDE A BRIEF PROFILE OF PUBLIC SERVICE.

A. Public Service is a wholly-owned subsidiary of Xcel Energy that provides electric generation, transmission, and distribution services to approximately 1.5 million retail customers and gas distribution service to approximately 1.4 million retail customers, primarily in eastern Colorado.[36] Public Service accounts for approximately 35 to 45 percent of Xcel Energy's consolidated net income.[37] Public Service's current long-term issuer credit ratings are shown in Figure AEB-D-7:

Figure AEB-D-7: Public Service Company Credit Ratings[38]

Credit Rating Agency	Rating	Outlook
Standard & Poor's	A-	Stable
Moody's Investors Service	Baa1	Stable

Q. HOW DID YOU SELECT THE COMPANIES IN YOUR PROXY GROUP?

A. I began with the group of 10 companies that Value Line classifies as Natural Gas Distribution Utilities and applied the following screening criteria to select companies that:

- pay consistent quarterly cash dividends, because companies that do not cannot be analyzed using the Constant Growth DCF model;
- have investment grade long-term issuer ratings from S&P and/or Moody's;
- are covered by at least two utility industry analysts;

[36] Xcel Energy Inc., SEC Form 10-K, February 17, 2021, at 9.

[37] *Id*.

[38] https://investors.xcelenergy.com/news-market-information/credit-ratings/default.aspx; accessed October 15, 2021.

- have positive long-term earnings growth forecasts from at least two utility industry equity analysts;
- derive more than 60.00 percent of their total operating income from regulated operations;
- derive more than 60.00 percent of regulated operating income from gas distribution operations; and;
- were not parties to a merger or transformative transaction during the analytical periods relied on.

Q. DID YOU INCLUDE PUBLIC SERVICE'S PARENT COMPANY, XCEL ENERGY, IN YOUR ANALYSIS?

A. No. In order to avoid the circular logic that otherwise would occur, it is my practice to exclude the subject company, or its parent holding company, from the proxy group.

Q. WHAT IS THE COMPOSITION OF YOUR PROXY GROUP?

A. The screening criteria just discussed results in a proxy group consisting of the companies shown in Figure AEB-D-8 (and also in Attachment AEB-2).

Figure AEB-D-8: Natural Gas Utility Proxy Group

Company	Ticker
Atmos Energy Corporation	ATO
New Jersey Resources Corporation	NJR
NiSource Inc.	NI
Northwest Natural Gas Company	NWN
ONE Gas, Inc.	OGS
South Jersey Industries, Inc.	SJI
Spire, Inc.	SR

Q. DO YOUR SCREENING CRITERIA RESULT IN A PROXY GROUP THAT IS COMPARABLE IN TERMS OF RISK TO PUBLIC SERVICE?

A. Yes, they do. The overall purpose of developing a set of screening criteria is to select a proxy group of companies that align with the financial and operational characteristics of Public Service and that investors would view as comparable to the Company. I developed the screens and thresholds for each screen based on judgment with the intention of balancing the need to maintain a proxy group that is of sufficient size with the need to establish a proxy group of companies that are comparable in business and financial risk to Public Service. This resulted in the group of seven companies shown in Figure AEB-D-8 that have business and financial risks comparable to the Company.

Q. DID YOU ADJUST THE OPERATING INCOME DATA FOR ANY OF THE COMPANIES INCLUDED IN YOUR PROXY GROUP TO REMOVE THE EFFECTS OF A ONE-TIME FINANCIAL EVENT?

A. Yes. As shown in Attachment AEB-2, page 2, I relied on the three-year average of operating income from 2018 to 2020 for two of my proxy group screening criteria:

(i) the total operating income from regulated operations; and (ii) regulated operating income from gas distribution operations. The operating income data from 2018 through 2020 for NiSource Inc. ("NiSource") was affected by a one-time financial event. The event was related to the company's former operating subsidiary, Columbia Gas of Massachusetts. On September 13, 2018, Columbia Gas of Massachusetts experienced a significant event as a result of over pressurized lines on its system. The incident resulted in immediate financial ramifications for NiSource in 2018, which reported operating income for its natural gas distribution operations segment in 2018 of -$254,100.[39] In addition, NiSource incurred impairment charges associated with the Massachusetts assets in 2019 and 2020. The 2019 impairment charges were incurred because the fair value of the Massachusetts assets was determined to be less than the book value,[40] while an impairment charge in 2020 was incurred due to a loss on the sale of the Massachusetts assets to Eversource Energy, which closed on October 9, 2020.[41] The inclusion of the impairment charges and the financial effect of the incident in 2018 would have resulted in NiSource deriving less than 60 percent of its regulated operating income from the natural gas distribution operations segment.

39 NiSource Inc., 2020 10-K, at 114.

40 *Id.,* at 71.

41 *Id.,* at 60.

Q. WHY IS IT APPROPRIATE TO ADJUST THE OPERATING INCOME DATA FOR NISOURCE TO REMOVE THE FINANCIAL EFFECTS OF THE INCIDENT ASSOCIATED WITH THE COMPANY'S MASSACHUSETTS ASSETS?

A. The incident in 2018 and the impairment charges in 2019 and 2020 will likely only affect the Company's financials in 2018, 2019 and 2020 because NiSource sold the Massachusetts assets to Eversource Energy in October of 2020. Therefore, the reported operating income from 2018 to 2020 for the company's natural gas distribution operations segment is not indicative of the segment's contributions to earnings in the future. As a result, NiSource will continue to derive a majority of its operating income from natural gas distribution operations going forward and, as a result, investors would view the company as comparable to Public Service.

Q. HOW DID YOU ADJUST THE OPERATING INCOME DATA FOR NISOURCE?

A. As shown in Attachment AEB-2, page 2, I obtained the total cost of the incident in 2018 and the total value of the impairment charges in 2019 and 2020 and added those values to the total operating income reported for the natural gas distribution operations segment for 2018 through 2020. Additionally, I also adjusted the corporate and other business segment data for another impairment charge that NiSource realized in 2019 related to the Massachusetts assets. These adjustments resulted in NiSource deriving 63.49 percent to 68.83 percent of its operating income from the natural gas operations segment for period of 2018 through 2020.

Q. HISTORICALLY, HAS NISOURCE'S OPERATING INCOME FROM REGULATED NATURAL GAS OPERATIONS PRIOR TO 2018 BEEN HIGHER THAN 60 PERCENT?

A. Yes. As shown in Attachment AEB-2, page 2, from 2010 through 2017, NiSource's operating income from regulated natural gas operations was greater than 60 percent in each of those years with the exception of 2017, when it was 59.72 percent, only slightly less than 60 percent. In fact, NiSource's average operating income from regulated natural gas operations for 2010 through 2017 is 64.67 percent. Therefore, it is evident from this analysis that NiSource does derive a majority its operating income from natural gas operations and will continue to do so going forward, and thus my adjustment to the remove the one-time financial event from 2018 through 2020 is reasonable. Thus, I have included NiSource in my proxy group.

Q. HAS THE COMMISSION TRADITIONALLY RELIED ON COMBINATION GAS AND ELECTRIC COMPANIES TO ESTABLISH THE PROXY GROUP FOR PUBLIC SERVICE?

A. Yes, the Commission has traditionally relied upon a proxy group consisting of combination electric and natural gas utilities in establishing the cost of equity for the Company. In my view, the current circumstances warrant a change in the proxy group to include only natural gas distribution companies. I recognize that Public Service operates as a combination gas and electric utility and raises capital as a combination company, meaning it does not issue separate debt or equity for the gas and electric operations. However, given that the Commission is setting

the authorized ROE for Public Service's natural gas distribution business, and as described later herein, natural gas distribution companies face specific business risks relative to an energy landscape transitioning from the use of fossil fuels, I believe it is appropriate to consider a proxy group consisting solely of natural gas distribution companies instead of combination gas and electric utilities. A proxy group consisting of natural gas distribution utilities is comparable to Public Service's natural gas business from a risk perspective and thus consistent with how investors would establish their return requirements for the Public Service gas business.

VII. COST OF EQUITY ESTIMATION

Q. PLEASE EXPLAIN THE RATE OF RETURN IN THE CONTEXT OF A REGULATED UTILITY.

A. The regulatory construct requires that the regulatory agency, acting as a substitute for the competitive market, establish a rate of return for the company that is commensurate with the rate of return expected in the market for investments of similar risk. There can be adjustments to the ROE to reflect specific performance (*e.g.*, positive adjustments recognizing strong management performance, cost savings and other important operational metrics, or negative adjustments reflecting poor performance in similar metrics). Absent any adjustments for these types of performance measures, the base ROE is intended to reflect the return that investors require in order to invest in utility assets rather than investing in enterprises of comparable risk in the industry or competitive market.

The overall rate of return for a regulated utility includes both the cost of debt and the cost of equity and is based on its weighted average cost of capital, whereby the costs of the individual sources of capital are weighted by their proportion in the capital structure. The appropriate cost of debt can be directly observed since utilities issue bonds in the market and investors determine the required return on those bonds to take on the risks associated with debt repayment. In contrast, the cost of equity is relatively less observable and must reflect that the risk to equity investors is greater than that of debt investors because equity investors are the claimants in the event of the dissolution of the business. In other words, the cost of equity is market-based and, therefore, must be estimated based on observable

market data. Accordingly, the returns for comparable publicly-traded companies can be used to determine the appropriate cost of equity for a regulated utility operating company.

Q. HOW IS THE REQUIRED ROE DETERMINED?

A. The required ROE is estimated by using multiple analytical techniques that rely on market data to quantify investors' return requirements, adjusted for certain incremental costs and risks. Quantitative models produce a range of reasonable results from which the market-required ROE is selected. That selection must be based on a comprehensive review of relevant data and information, but it does not necessarily lend itself to a strict mathematical solution. The key consideration in determining the cost of equity is to ensure that the methodologies employed reasonably reflect investors' views of the financial markets in general and of the subject company (in the context of the proxy group) in particular.

Q. WHAT METHODS DID YOU USE TO ESTIMATE PUBLIC SERVICE'S COST OF EQUITY?

A. I considered the results of the Constant Growth DCF model, the CAPM and ECAPM analyses, and the Bond Yield Plus Risk Premium methodology. I believe that a reasonable ROE estimate considers alternative methodologies, observable market data, and the reasonableness of their individual and collective results.

A. Importance of Multiple Analytical Approaches

Q. WHY IS IT IMPORTANT TO USE MORE THAN ONE ANALYTICAL APPROACH?

A. Because the cost of equity is not directly observable, it must be estimated based on both quantitative and qualitative information. When faced with the task of estimating the cost of equity, analysts and investors are inclined to gather and evaluate as much relevant data as reasonably can be analyzed. Several models have been developed to estimate the cost of equity, and I use multiple approaches to estimate the cost of equity. As a practical matter, however, all of the models available for estimating the cost of equity are subject to limiting assumptions or other methodological constraints. Consequently, many well-regarded finance texts recommend using multiple approaches when estimating the cost of equity. For example, Copeland, Koller, and Murrin[42] suggest using the CAPM and Arbitrage Pricing Theory model, while Brigham and Gapenski[43] recommend the CAPM, DCF, and Bond Yield Plus Risk Premium approaches. Consistent with the *Hope* finding, it is the analytical result, not the methodology employed, which is controlling in arriving at ROE determinations.

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[42] Tom Copeland, Tim Koller and Jack Murrin, Valuation: Measuring and Managing the Value of Companies, 3rd Ed. (New York: McKinsey & Company, Inc., 2000), at 214.

[43] Eugene Brigham, Louis Gapenski, Financial Management: Theory and Practice, 7th Ed. (Orlando: Dryden Press, 1994), at 341.

Q. IS IT IMPORTANT GIVEN THE CURRENT MARKET CONDITIONS TO USE MORE THAN ONE ANALYTICAL APPROACH?

A. Yes. Low interest rates and the effects of the investor "flight to quality" associated with the pandemic can be seen in relatively high utility share valuations compared to historical levels and to the broader market. However, as discussed, the economy is expected to transition out of the pandemic and utility stock prices are expected to underperform the broader market, which means that current dividend yields for natural gas utilities reflected in the DCF are projected to underestimate the cost of equity for the Company going forward.

Likewise, as previously discussed, interest rates are also projected to continue to rise as the economy transitions out of the pandemic. Relatively lower interest rates currently also affect the CAPM in two ways: (1) the risk-free rate is lower that it is expected to be going forward; and (2) because the market risk premium is a function of interest rates (*i.e.*, it is the return on the broad stock market less the risk-free interest rate), the market risk premium is expected to be higher when interest rates are lower. As previously discussed, interest rates have been increasing, and the expectation that bond yields will not remain at currently low levels means that the expected cost of equity would be higher than is suggested by the CAPM using historical average yields. Thus, use of projected Treasury bond yields in the CAPM results in estimates that are more reflective of the market conditions that investors expect during the period that the Company's rates will be in effect.

Therefore, it is important to use multiple analytical approaches to moderate the impact that the current low interest rate environment is having on the ROE estimates for the proxy group and, where possible, consider using projected market data in the models to estimate the return for the forward-looking period over which the rates being established will be in effect. Relying exclusively on historical assumptions in these models, without considering whether these assumptions are consistent with investors' future expectations, will underestimate the cost of equity that investors would require over the period that the rates in this case are to be in effect.

Q. DOES THE COMMISSION SUPPORT THE USE OF MULTIPLE MODELS IN SETTING THE APPROPRIATE ROE?

A. Yes. I understand that, in its deliberations regarding the Company's electric utility rate case in Proceeding No. 19AL-0268E, the Commission indicated that it did not have a preference for any particular rate of return model, and that all model results have relevance and should be considered.[44]

B. <u>Constant Growth DCF Model</u>

Q. PLEASE DESCRIBE THE DCF APPROACH.

A. The DCF approach is based on the theory that a stock's current price represents the present value of all expected future cash flows. In its most general form, the DCF model is expressed as follows:

[44] Proceeding No. 19AL-0268E, Decision No. C20-0096, at 35.

$$P_0 = \frac{D_1}{(1+k)} + \frac{D_2}{(1+k)^2} + \ldots + \frac{D_\infty}{(1+k)^\infty} \quad [1]$$

Where P_0 represents the current stock price, D1…D∞ are all expected future dividends, and k is the discount rate, or required ROE. Equation [1] is a standard present value calculation that can be simplified and rearranged into the following form:

$$k = \frac{D_0(1+g)}{P_0} + g \quad [2]$$

Equation [2] is often referred to as the Constant Growth DCF model in which the first term is the expected dividend yield and the second term is the expected long-term growth rate.

Q. WHAT ASSUMPTIONS ARE REQUIRED FOR THE CONSTANT GROWTH DCF MODEL?

A. The Constant Growth DCF model requires the following assumptions: (1) a constant growth rate for earnings and dividends; (2) a stable dividend payout ratio; (3) a constant price-to-earnings ("P/E") ratio; and (4) a discount rate greater than the expected growth rate. To the extent any of these assumptions is violated, considered judgment and/or specific adjustments should be applied to the results.

Q. WHAT MARKET DATA DID YOU USE TO CALCULATE THE DIVIDEND YIELD IN YOUR CONSTANT GROWTH DCF MODEL?

A. The dividend yield in my Constant Growth DCF model is based on the proxy group companies' current annual dividend and average closing stock prices over the 30-, 90-, and 180-trading days ended December 31, 2021.

Q. DID YOU MAKE ANY ADJUSTMENTS TO THE DIVIDEND YIELD TO ACCOUNT FOR PERIODIC GROWTH IN DIVIDENDS?

A. Yes. Since utility companies tend to increase their quarterly dividends at different times throughout the year, it is reasonable to assume that dividend increases will be evenly distributed over calendar quarters. Given that assumption, it is reasonable to apply one-half of the expected annual dividend growth rate for purposes of calculating the expected dividend yield component of the DCF model. This adjustment ensures that the expected first year dividend yield is, on average, representative of the coming twelve-month period, and does not overstate the aggregated dividends to be paid during that time.

Q. WHY IS IT IMPORTANT TO SELECT APPROPRIATE MEASURES OF LONG-TERM GROWTH IN APPLYING THE DCF MODEL?

A. In its Constant Growth form, the DCF model (*i.e.*, Equation [2]) assumes a single long-term growth rate in perpetuity. In order to reduce the long-term growth rate to a single measure, one must assume that the dividend payout ratio remains constant and that Earnings Per Share ("EPS"), dividends per share, and book value per share all grow at the same constant rate. Over the long run, however, dividend growth can only be sustained by earnings growth. Therefore, it is important to incorporate a variety of sources of long-term earnings growth rates into the Constant Growth DCF model.

Q. WHAT SOURCES OF LONG-TERM GROWTH RATES DID YOU RELY ON IN YOUR CONSTANT GROWTH DCF MODEL?

A. As shown in Attachment AEB-3, my Constant Growth DCF model incorporates three sources of long-term growth rates: (1) consensus long-term earnings growth estimates from Zacks Investment Research; (2) consensus long-term earnings growth estimates from Thomson First Call (provided by Yahoo! Finance); and (3) long-term earnings growth estimates from Value Line Investment Survey ("Value Line").

Q. HOW DID YOU CALCULATE THE RANGE OF RESULTS FOR THE CONSTANT GROWTH DCF MODEL?

A. I calculated the low-end result for the Constant Growth DCF model using the lowest projected earnings growth rate (*i.e.*, the lowest of First Call, Zacks, and Value Line) for each of the proxy group companies. I applied a similar approach to calculate the high-end result for the Constant Growth DCF model by using the highest projected earnings growth rate of the three sources for each proxy group company. The mean results of the Constant Growth DCF model were calculated using the mean growth rate of the three sources for each proxy group company. Once the results for each proxy group company were calculated, I then relied on the median of the results as the measure of central tendency for purposes of my analysis, referring to each of the results as the "median low," "median" and "median high" results.

Q. DID YOU REVIEW THE DCF RESULTS FOR INDIVIDUAL COMPANIES IN YOUR PROXY GROUP?

A. Yes, I did. It is important to review the DCF results of the individual companies included in the proxy group to ensure that the DCF results of each company provide a sufficient return increment above the long-term debt costs to compensate investors for the added risk of an equity investment.

Q. HOW DID YOU DETERMINE THE LOW-END THRESHOLD THAT YOU USED TO EVALUATE THE DCF RESULTS FOR THE INDIVIDUAL COMPANIES IN THE PROXY GROUP?

A. The average credit rating for the companies in my proxy group is A- from S&P and A3 from Moody's. The average yield on Moody's A-rated utility bonds for the 30 trading days ending December 31, 2021 was 3.04 percent.[45] Therefore, for example, a 7.00 percent DCF result would provide a risk premium of only 3.96 basis points above "A" rated utility bonds. As a result, I have determined that a Constant Growth DCF result lower than 7.00 percent would not provide equity investors a sufficient risk premium above long-term debt costs.

Q. HOW DID YOU ADDRESS THE DCF RESULTS FOR INDIVIDUAL COMPANIES IN YOUR PROXY GROUP THAT WERE BELOW 7.00 PERCENT?

A. I developed two approaches to account for the DCF results for individual companies in my proxy group that were below 7.00 percent. First, I relied on the median DCF result for the proxy group as the measure of central tendency and did

[45] Bloomberg Professional.

not exclude any DCF results for individual companies. In general, the median is not affected to a large degree by the presence of outliers and thus can be applied when it is determined that a data may include outliers. Second, I excluded the DCF results that were below 7.00 percent and then calculated the mean DCF result for the proxy group. Since the mean can be affected by outlier results, it is important to exclude the individual results for companies that would not provide a sufficient return requirement above the cost of long-term debt. As shown on Attachment AEB-3, In the Constant Growth DCF model, the exclusion of results below 7.00 percent applies only to New Jersey Resources Corp. when the minimum growth rate is used for purposes of estimating the ROE.

C. Constant Growth DCF Results

Q. PLEASE SUMMARIZE THE RESULTS OF YOUR DCF ANALYSES.

A. The results of my Constant Growth DCF analyses are summarized in Figure AEB-D-9. As shown, depending on the time period over which the average stock prices for the dividend yield are calculated, using the average growth rates the results of the Constant Growth DCF range from 9.86 percent to 10.24 percent. Using the mean high growth rates, the range is 10.90 percent to 12.10 percent.

Figure AEB-D-9: Summary of DCF Results[46]

Constant Growth DCF						
	Minimum Growth Rate		Average Growth Rate		Maximum Growth Rate	
	Median	Mean	Median	Mean	Median	Mean
30-Day Average	9.31%	9.40%	9.86%	10.24%	11.03%	12.10%
90-Day Average	9.07%	9.31%	9.88%	10.17%	11.10%	12.03%
180-Day Average	8.88%	9.16%	9.86%	10.02%	10.90%	11.87%

Q. WHAT ARE YOUR CONCLUSIONS ABOUT THE RESULTS OF THE DCF MODELS?

A. As discussed previously, one primary assumption of the DCF models is a constant P/E ratio. That assumption is heavily influenced by the market price of utility stocks. Since utility stocks are expected to underperform the broader market over the near-term as interest rates increases, it is important to consider the results of the DCF models with caution. This means that the results of the DCF models, which rely on historical stock prices, are below where they would be expected to be going forward during the period in which the rates for the Company will be in effect. Therefore, while I have given weight to the results of the DCF models, my recommendation also gives weight to the results of other ROE estimation models.

D. <u>CAPM Analysis</u>

Q. PLEASE BRIEFLY DESCRIBE THE CAPITAL ASSET PRICING MODEL.

A. The CAPM is a risk premium approach that estimates the cost of equity for a given security as a function of a risk-free return plus a risk premium to compensate

[46] Results shown in Figure AEB-D-9 do not include flotation costs.

investors for the non-diversifiable or "systematic" risk of that security.[47] This second component is the product of the market risk premium and the Beta coefficient, which measures the relative riskiness of the security being evaluated.

The CAPM is defined by four components, each of which must theoretically be a forward-looking estimate:

$$K_e = r_f + \beta\left(r_m - r_f\right) \quad [3]$$

Where:

K_e = the required market ROE;

β = Beta coefficient of an individual security;

r_f = the risk-free ROR; and

r_m = the required return on the market as a whole.

In this specification, the term ($r_m - r_f$) represents the Market Risk Premium. According to the theory underlying the CAPM, since unsystematic risk can be diversified away, investors should only be concerned with systematic risk. Systematic risk is measured by Beta, which is a measure of the volatility of a security as compared to the overall market. Beta is defined as:

$$\beta = \frac{Covariance(r_e, r_m)}{Variance(r_m)} \quad [4]$$

The variance of the market return (i.e., Variance (r_m)) is a measure of the uncertainty of the general market. The covariance between the return on a specific security and the general market (*i.e.*, Covariance (r_e, r_m)) reflects the extent to

[47] Systematic risk is the risk inherent in the entire market or market segment. This form of risk cannot be diversified away using a portfolio of assets. Non-systematic risk is the risk of a specific company that can be mitigated through portfolio optimization.

which the return on that security will respond to a given change in the general market return. Thus, Beta represents the risk of the security relative to the general market.

Q. WHAT RISK-FREE RATE DID YOU USE IN YOUR CAPM ANALYSIS?

A. I relied on three sources for my estimate of the risk-free rate: (1) the current 30-day average yield on 30-year Treasury bonds of 1.87 percent;[48] (2) the projected 30-year Treasury yield for Q2 2022 – Q2 2023 of 2.52 percent;[49] and (3) the average projected 30-year Treasury bond yield for the period 2022 through 2026 of 3.40 percent.[50]

Q. WOULD YOU PLACE MORE WEIGHT ON ONE OF THESE SCENARIOS?

A. Yes. Based on current market conditions, I place more weight on the results of the projected yields on the 30-year Treasury bonds. As discussed previously, the estimation of the cost of equity in this case should be forward-looking because it is the return that investors would receive over the future rate period. Therefore, the inputs and assumptions used in the CAPM analysis should reflect the expectations of the market at that time. While I have included the results of a CAPM analysis that relies on a current 30-day average risk-free rate, this analysis fails to take into consideration the effect of the market's expectations for interest rate increases on the cost of equity.

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[48] Bloomberg Professional as of December 31, 2021.

[49] Blue Chip Financial Forecasts, Vol. 41, No. 1, January 1, 2022, at 2.

[50] Blue Chip Financial Forecasts, Vol. 40, No. 12, December 1, 2021, at 14.

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

A. As shown in Attachment AEB-4, I used the Beta coefficients for the proxy group companies as reported by Bloomberg and Value Line. The Beta coefficients reported by Bloomberg are calculated using ten years of weekly returns relative to the S&P 500 Index. The Beta coefficients reported by Value Line are calculated based on five years of weekly returns relative to the New York Stock Exchange Composite Index. Additionally, as shown in Attachments AEB-5 and AEB-6, I also considered an additional CAPM analysis that relies on the long-term average Beta coefficient reported by Value Line for the companies in my proxy group from 2011 through 2021.

Q. HOW DID YOU ESTIMATE THE MARKET RISK PREMIUM IN THE CAPM?

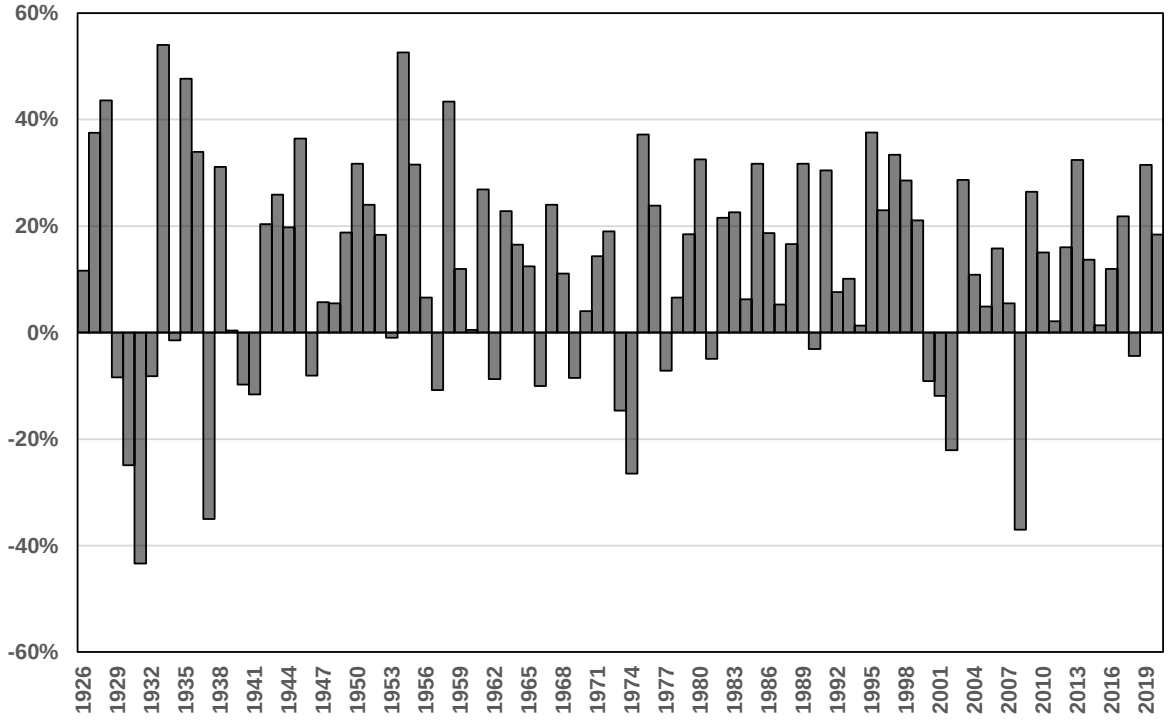
A. I estimated the market risk premium as the difference between the implied expected equity market return and the risk-free rate. The expected return on the S&P 500 Index is calculated using the Constant Growth DCF model discussed earlier in my testimony for the companies in the S&P 500 Index for which dividend yields and Value Line long-term earnings projections are available. In addition, I exclude those companies whose earnings projections are either greater than 20.00 percent or lower than 0.00 percent. As shown in Attachment AEB-7, based on an estimated market capitalization-weighted dividend yield of 1.48 percent and a weighted long-term growth rate of 11.06 percent, the estimated required market return for the S&P 500 Index is 12.63 percent. The implied market risk premium over the risk-free rates evaluated (*i.e.*, the current, near-term projected and longer-

term projected 30-year U.S. Treasury bond yield) ranges from 9.23 percent to 10.11 percent.

Q. HOW DOES THE EXPECTED MARKET RETURN YOU HAVE CALCULATED COMPARE TO OBSERVED HISTORICAL MARKET RETURNS?

A. Given the range of annual equity returns that have been observed over the past century as shown in Figure AEB-D-10, a current expected market return of 12.63 percent is consistent with the historical returns. In fact, in 49 out of the past 95 years (or approximately 52% of the observations), the realized equity return was at least 12.63 percent or greater.

Figure AEB-D-10: Realized U.S. equity market returns (1926-2020)[51]



[51] Depicts total annual returns on large company stocks, as reported in the 2021 Duff & Phelps SBBI Yearbook.

Q. DID YOU CONSIDER ANOTHER FORM OF THE CAPM?

A. Yes, I did. I have also considered the results of an ECAPM[52] in estimating the cost of equity for Public Service. The ECAPM calculates the product of the adjusted Beta coefficient and the market risk premium and applies a weight of 75.00 percent to that result. The model then applies a 25.00 percent weight to the market risk premium, without any effect from the Beta coefficient. The results of the two calculations are summed, along with the risk-free rate, to produce the ECAPM result, as noted in Equation [5] below:

$$k_e = r_f + 0.75\beta(r_m - r_f) + 0.25(r_m - r_f) \qquad [5]$$

Where:

k_e = the required market ROE

β = Beta coefficient of an individual security

r_f = the risk-free rate of return

r_m = the required return on the market as a whole

In essence, the Empirical form of the CAPM addresses the tendency of the "traditional" CAPM to underestimate the cost of equity for companies with low Beta coefficients such as regulated utilities. In that regard, the ECAPM is not redundant to the use of adjusted Betas; rather, it recognizes the results of academic research indicating that the risk-return relationship is different (in essence, flatter) than estimated by the CAPM, and that the CAPM underestimates the "alpha," or the constant return term.[53]

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[52] *See, e.g.*, Roger A. Morin, New Regulatory Finance, Public Utilities Reports, Inc., 2006, at 189.

[53] *Id*. at 191.

Consistent with the CAPM, my application of the ECAPM also relies on the forward-looking market risk premium estimates, the current, near-term and longer-term 30-year Treasury yields as the risk-free rate, and the Bloomberg, Value Line and long-term average Beta coefficients.

Q. WHAT ARE THE RESULTS OF YOUR CAPM AND ECAPM ANALYSES?

A. As shown in Figure AEB-D-11**,** my traditional CAPM analysis produces a range of returns from 9.77 percent to 11.57 percent. The ECAPM analysis results range from 10.48 percent to 11.84 percent.

Figure AEB-D-11: CAPM Results

Traditional CAPM - S&P 500 DCF			
	Current 30-Day Avg. 30-Year Treasury Bond Yield	Near-Term Proj'd. 30-Year Treasury Bond Yield	Long-Term Proj'd. 30-Year Treasury Bond Yield
Value Line Betas	11.40%	11.47%	11.57%
Bloomberg Betas	10.90%	11.00%	11.14%
Long-Term Avg. Beta	9.77%	9.94%	10.18%
Empirical CAPM - S&P 500 DCF			
	Current 30-Day Avg. 30-Year Treasury Bond Yield	Near-Term Proj'd. 30-Year Treasury Bond Yield	Long-Term Proj'd. 30-Year Treasury Bond Yield
Value Line Betas	11.70%	11.76%	11.84%
Bloomberg Betas	11.33%	11.41%	11.51%
Long-Term Avg. Beta	10.48%	10.61%	10.79%
Treasury Yield Plus Risk Premium			
	Current 30-Day Avg. 30-Year Treasury Bond Yield	Near-Term Proj'd. 30-Year Treasury Bond Yield	Long-Term Proj'd. 30-Year Treasury Bond Yield
	9.33%	9.60%	9.97%

E. <u>Bond Yield Plus Risk Premium Analysis</u>

Q. PLEASE DESCRIBE THE BOND YIELD PLUS RISK PREMIUM APPROACH.

A. In general terms, this approach is based on the fundamental principle that equity investors bear the residual risk associated with equity ownership and therefore

require a premium over the return they would have earned as a bondholder. That is, because returns to equity holders have greater risk than returns to bondholders, equity investors must be compensated to bear that risk. Risk premium approaches, therefore, estimate the cost of equity as the sum of the equity risk premium and the yield on a particular class of bonds. In my analysis, I used actual authorized returns for natural gas utility companies as the historical measure of the cost of equity to determine the risk premium.

Q. ARE THERE OTHER CONSIDERATIONS THAT SHOULD BE ADDRESSED IN CONDUCTING THIS ANALYSIS?

A. Yes. It is important to recognize both academic literature and market evidence indicating that the equity risk premium (as used in this approach) is inversely related to the level of interest rates. That is, as interest rates increase (decrease), the equity risk premium decreases (increases). Consequently, it is important to develop an analysis that: (1) reflects the inverse relationship between interest rates and the equity risk premium; and (2) relies on recent and expected market conditions. Such an analysis can be developed based on a regression of the risk premium as a function of U.S. Treasury bond yields. If authorized ROEs for natural gas utilities serve as the measure of required equity returns and define the yield on the long-term U.S. Treasury bond as the relevant measure of interest rates, the risk premium simply would be the difference between those two points.[54]

[54] *See e.g.*, S. Keith Berry, *Interest Rate Risk and Utility Risk Premia during 1982-93*, Managerial and Decision Economics, Vol. 19, No. 2 (March 1998), in which the author used a methodology similar to the regression approach described below, including using allowed

Q. IS THE BOND YIELD PLUS RISK PREMIUM ANALYSIS RELEVANT TO INVESTORS?

A. Yes. Investors are aware of ROE awards in other jurisdictions, and they consider those awards as a benchmark for a reasonable level of equity returns for utilities of comparable risk operating in other jurisdictions. Because my Bond Yield Plus Risk Premium analysis is based on authorized ROEs for utility companies relative to corresponding Treasury yields, it provides relevant information to assess the return expectations of investors.

Q. WHAT DID YOUR BOND YIELD PLUS RISK PREMIUM ANALYSIS REVEAL?

A. As shown in Figure AEB-D-12, from 1992 through December 2021, there was a strong negative relationship between risk premia and interest rates. To estimate that relationship, I conducted a regression analysis using the following equation:

$$RP = a + b(T) \quad [6]$$

Where:

RP = Risk Premium (difference between authorized ROEs and the yield on 30-year U.S. Treasury bonds)

a = intercept term

b = slope term

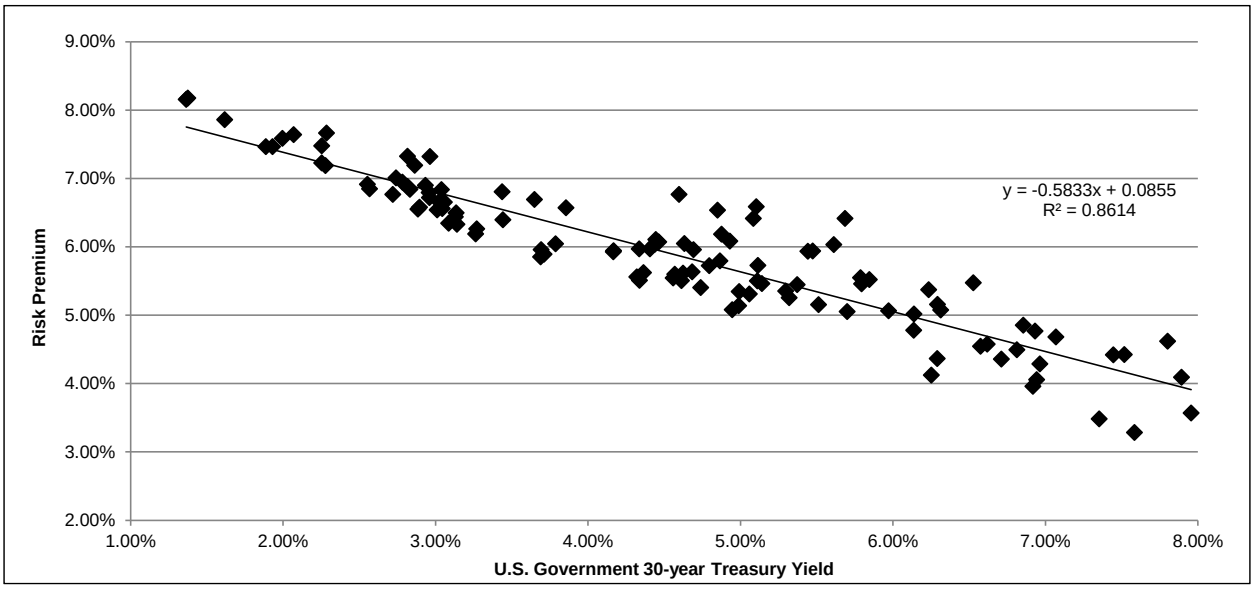
T = 30-year U.S. Treasury bond yield

Data regarding allowed ROEs were derived from more than 700 natural gas utility rate cases from 1992 through December 2021 as reported by Regulatory

ROEs as the relevant data source, and came to similar conclusions regarding the inverse relationship between risk premia and interest rates. *See also* Robert S. Harris, *Using Analysts' Growth Forecasts to Estimate Shareholders Required Rates of Return*, Financial Management, Spring 1986, at 66.

Research Associates ("RRA"). The equation's coefficients were statistically significant at the 99.00 percent level.

Figure AEB-D-12: Risk Premium Results



As shown on Attachment AEB-8, based on the current 30-day average of the 30-year U.S. Treasury bond yield (*i.e*., 1.87 percent), the risk premium would be 7.46 percent, resulting in an estimated ROE of 9.33 percent. Based on the near-term (Q2 2022 – Q2 2023) projected 30-year U.S. Treasury bond yield (*i.e.*, 2.52 percent), the risk premium would be 7.08 percent, resulting in an estimated ROE of 9.58 percent. Based on longer-term (2023-2027) projected 30-year U.S. Treasury bond yield *(i.e*., 3.40 percent), the risk premium would be 6.57 percent, resulting in an estimated ROE of 9.97 percent.

Q. HOW DO THE RESULTS OF THE BOND YIELD RISK PREMIUM ANALYSIS INFORM YOUR RECOMMENDED ROE FOR PUBLIC SERVICE?

A. In conjunction with the other ROE models that I have discussed, I have considered the results of the Bond Yield Risk Premium analysis in setting my recommended

ROE for Public Service. As noted above, investors consider the ROE award of a company when assessing the risk of that company as compared to utilities of comparable risk operating in other jurisdictions. The risk premium analysis accounts for this comparison by estimating the return expectations of investors based on the current and past ROE awards of natural gas utilities across the U.S.

VIII. REGULATORY AND BUSINESS RISKS

Q. DO THE MEDIAN AND MEAN RESULTS OF THE DCF, CAPM, ECAPM, AND RISK PREMIUM RESULTS FOR THE PROXY GROUP PROVIDE AN APPROPRIATE ESTIMATE OF THE COST OF EQUITY FOR PUBLIC SERVICE?

A. No. These results provide only a range of the appropriate estimate of Public Service's cost of equity. Several additional factors must be considered when determining where the Company's cost of equity falls within the range of analytical results. These risk factors, discussed below, should be considered with respect to their overall effect on Public Service's risk profile relative to the proxy group.

A. Regulatory Risks

Q. PLEASE EXPLAIN HOW THE REGULATORY ENVIRONMENT AFFECTS INVESTORS' RISK ASSESSMENTS.

A. The ratemaking process is premised on the principle that, for investors and companies to commit the capital needed to provide safe and reliable utility service, the subject utility must recover the return of, and have the opportunity to recover a reasonable market-required return on, invested capital. Regulatory authorities recognize that because utility operations are capital intensive, regulatory decisions should enable the utility to attract capital at reasonable terms, and that doing so balances the long-term interests of investors and customers. Utilities must finance their operations and thus require the opportunity to earn a reasonable return on their invested capital to maintain their financial profiles. These principles were established in a recent decision of the District Court:

> Under a cost-of-service framework, the PUC is charged with establishing just and reasonable rates, which includes providing the utility the recovery of prudently incurred costs, as well as the opportunity to earn a reasonable return on its investments.[55]

Public Service is no exception, and in that respect, the regulatory environment is one of the most important factors considered in both debt and equity investors' risk assessments.

From the perspective of debt investors, the authorized return should enable the utility to generate the cash flow needed to meet its near-term financial obligations, make the capital investments needed to maintain and expand its systems, and maintain the necessary levels of liquidity to fund unexpected events. This financial liquidity must be derived not only from internally generated funds, but also by efficient access to capital markets. Moreover, because fixed income investors have many investment alternatives, even within a given market sector, a utility's financial profile must be adequate on a relative basis to ensure its ability to attract capital under a variety of economic and financial market conditions.

Equity investors require that the authorized and earned returns be adequate to provide a risk-comparable return on the equity portion of the utility's capital investments. Because equity investors are the residual claimants on the utility's cash flows (*i.e.*, the equity return is subordinate to interest payments), they are particularly concerned with the strength of regulatory support and its effect on

[55] District Court, City and County of Denver, State of Colorado, Public Service Company of Colorado v. Public Utilities Commission of the State of Colorado et. al., Case Number 20CV32793, Opinion and Order at 4.

future cash flows because these items directly affect the utility's ability to earn its authorized return.

Q. PLEASE EXPLAIN HOW CREDIT RATING AGENCIES CONSIDER REGULATORY RISK IN ESTABLISHING A COMPANY'S CREDIT RATING.

A. Both S&P and Moody's consider the overall regulatory framework in establishing credit ratings. Moody's establishes credit ratings based on four key factors: (1) regulatory framework; (2) the ability to recover costs and earn returns; (3) diversification; and (4) financial strength, liquidity and key financial metrics. Of these criteria, regulatory framework and the ability to recover costs and earn returns are each given a broad rating factor of 25.00 percent. Therefore, Moody's assigns regulatory risk a 50.00 percent weighting in the overall assessment of business and financial risk for regulated utilities.[56]

S&P also identifies the regulatory framework as an important factor in credit ratings for regulated utilities, stating: "One significant aspect of regulatory risk that influences credit quality is the regulatory environment in the jurisdictions in which a utility operates."[57] S&P identifies four specific factors that it uses to assess the credit implications of the regulatory jurisdictions of investor-owned regulated

[56] Moody's Investors Service, Rating Methodology: Regulated Electric and Gas Utilities, June 23, 2017, at 4.

[57] Standard & Poor's Global Ratings, Ratings Direct, U.S. and Canadian Regulatory Jurisdictions Support Utilities' Credit Quality—But Some More So Than Others, June 25, 2018, at 2.

utilities: (1) regulatory stability; (2) tariff-setting procedures and design; (3) financial stability; and (4) regulatory independence and insulation.[58]

Q. HOW DOES THE REGULATORY ENVIRONMENT IN WHICH A UTILITY OPERATES AFFECT ITS ACCESS TO AND COST OF CAPITAL?

A. The regulatory environment can significantly affect both the access to and cost of capital in several ways. First, the proportion and cost of debt capital available to utility companies are influenced by the rating agencies' assessment of the regulatory environment. As noted by Moody's, "[f]or rate regulated utilities, which typically operate as a monopoly, the regulatory environment and how the utility adapts to that environment are the most important credit considerations."[59] Moody's further highlighted the relevance of a stable and predictable regulatory environment to a utility's credit quality, noting: "[b]roadly speaking, the Regulatory Framework is the foundation for how all the decisions that affect utilities are made (including the setting of rates), as well as the predictability and consistency of decision-making provided by that foundation."[60]

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[58] *Id*., at 1.

[59] Moody's Investors Service, Rating Methodology: Regulated Electric and Gas Utilities, June 23, 2017, at 6.

[60] *Id*.

Q. HAVE YOU CONDUCTED AN ANALYSIS OF THE REGULATORY FRAMEWORK IN COLORADO FOR PUBLIC SERVICE'S GAS BUSINESS RELATIVE TO THE JURISDICTIONS IN WHICH THE COMPANIES IN YOUR PROXY GROUP OPERATE?

A. Yes. I have evaluated the regulatory framework in Colorado based on four factors that are important in terms of providing a regulated utility an opportunity to earn its authorized ROE. These factors are: (1) the test year convention for ratemaking (*i.e.*, forecasted vs. historical test year); (2) the method for determining rate base for ratemaking (*i.e.*, average vs. year-end rate base); (3) the use of revenue decoupling or other mechanisms that mitigate volumetric risk; and (4) the prevalence of capital cost recovery between rate cases.

Q. WHAT ARE THE RESULTS OF YOUR ANALYSIS?

A. The results of my regulatory risk assessment are shown in Attachment AEB-9 and are summarized as follows:

Test Year Convention: Public Service's rates are currently based on a historical test year with limited adjustments, although Colorado statute allows for the use of a current or forecasted test year. In this proceeding, Public Service is proposing a 2022 Current Test Year ("CTY") that will be updated in rebuttal and will be subject to a further capital-true up to actual 2022 costs. Combined with the use of primarily historical O&M, the costs in the CTY will ultimately be largely historical. The Company is also proposing limited capital steps for 2023 and 2024, as noted below. As shown in Attachment AEB-9, approximately 42 percent of the

utility operating subsidiaries of the companies in the proxy group use a historical test year, while the remainder use partially or fully forecasted test years.

Rate Base: In the last rate proceeding, the Company's rate base was determined based on year-end rate base,[61] meaning that the rate base includes capital additions that occurred in the second half of the test year and is more reflective of net utility plant going forward. It is important to note, however, that the use of a year-end rate base has not been firmly established by the Colorado Commission. Rather, the use of year-end rate base in Public Service's last rate proceeding was a result of a Commission-approved settlement. The Company is proposing a CTY with an average rate base convention in this proceeding. However, a year-end rate base that reduces regulatory lag would be consistent with the majority (*i.e.*, 67 percent) of the utility operating subsidiaries of the companies in the proxy group. Using average rate base would represent greater risk than exists for the operating utilities of the proxy group companies.

Volumetric Risk/Decoupling: Public Service's natural gas business has an adjustment clause that allows for recovery of lost revenues associated with customer participation in demand side management programs, but it does not have protection against volumetric risk for the gas business through a weather normalization clause, which is a form of partial decoupling. In this proceeding, consistent with HB 21-1238, Public Service is requesting full revenue-per-customer decoupling for residential and small commercial customers. This

[61] In this proceeding there was one post-test year adjustment as of April 30, 2020.

proposal is consistent with the proxy group, whereby 83 percent of the proxy group operating companies also have some form of protection against volumetric risk. My risk assessment is based on the assumption that Public Service's decoupling proposal is authorized by the Commission in this proceeding, particularly given the statutory authority. However, I do note that Public Service's current electric Revenue Decoupling Adjustment mechanism challenge's Public Service's overall risk profile if, over time, residential and/or small commercial gas load transfers to electric within Public Service's electric service territory.

Capital Cost Recovery: Approximately 83 percent of the proxy group operating companies have some form of capital cost recovery mechanism for ratemaking purposes. Pursuant to a recently approved settlement agreement, Public Service's Pipeline System Integrity Adjustment ("PSIA") rider was terminated effective December 31, 2021 and is winding down through an authorized PSIA deferral mechanism for only 2022 PSIA capital investment in five ongoing distribution and transmission system integrity projects.[62] Post-2022 PSIA capital investment will be recovered in the normal course of business. In this proceeding Public Service is proposing capital investment step increases in 2023 and 2024, which are discussed in more detail in the Direct Testimony of Mr. Steven Berman. While the mechanisms may differ, the risk mitigation proposed by Public Service for the more timely recovery of capital investment is generally consistent

[62] Public Utilities Commission of Colorado, Decision No. C21-0715, Proceeding No. 21A-0071G, Decision Granting Joint Motion, Approving Settlement Agreement, and Granting Application as Modified by Settlement Agreement, October 20, 2021.

with the proxy group companies. My risk analysis assumes Public Service's capital step proposal is granted and if it is not, the Company's risk profile would increase.

Q. IS THERE EVIDENCE THAT PUBLIC SERVICE HAS BEEN UNABLE TO EARN ITS AUTHORIZED RETURN ON EQUITY FOR THE GAS BUSINESS?

A. Yes. As shown in Figure AEB-D-13, Public Service's Gas business has persistently and substantially under-earned its authorized ROE in each year since 2010. Over this period, the average earned ROE on the Company's natural gas business was 7.81 percent, as compared with the average authorized ROE of 9.66 percent, for an average under-earning of 185 basis points per year. This under-earning occurred even though Public Service was, until recently, allowed to add interim capital investment through the PSIA rider.

Figure AEB-D-13: Public Service's Earned vs. Authorized ROE for Its Gas Business

	Earned ROE	Authorized ROE	Earnings Differential (bps)
2020	8.78%	9.20%	(42)
2019	6.81%	9.35%	(254)
2018	8.49%	9.35%	(84)
2017	6.64%	9.50%	(286)
2016	7.34%	9.50%	(216)
2015	6.04%	9.50%	(346)
2014	7.59%	9.72%	(213)
2013	9.01%	9.72%	(71)
2012	7.23%	10.10%	(287)
2011	8.78%	10.10%	(132)
2010	9.16%	10.25%	(109)
2009	10.77%	10.25%	52
Average	**7.81%**	**9.66%**	**(185)**

The above data demonstrate that earnings attrition has been persistent and substantial for Public Service's gas business since 2010.

Q. HAVE THE RATING AGENCIES COMMENTED ON THE COLORADO REGULATORY JURISDICTION?

A. Yes. In a recent research update on Public Service, S&P noted that the consistency within the ratemaking process in Colorado had weakened and revised their regulatory jurisdiction assessment of Colorado downward. As support for this decision, S&P referenced the Commission's authorization of below national average ROEs and capital structure parameters and the Commission's recent

reliance on average cost rate base instead of year-end rate base, as well as the use of historical test periods when forecasted test periods are allowed by law. Based on this assessment of the Colorado regulatory jurisdiction, S&P lowered Public Service's competitive position from excellent to strong.[63]

Q. ARE THERE ANY OTHER REGULATORY RISKS RELATED TO THE COMPANY'S GAS BUSINESS AS COMPARED TO THE PROXY GROUP?

A. Yes. In February 2021, Winter Storm Uri brought extreme cold temperatures to a large portion of the central United States, causing natural gas supply disruptions and extremely high natural gas prices. As a result of Winter Storm Uri, the Company incurred approximately $287 million in incremental costs related to elevated natural gas commodity prices.[64] On October 25, 2021, the Company agreed to a settlement in principle regarding the recovery of the extraordinary costs associated with the storm, which would have recovered the storm-related costs – without carrying costs – over a 30-month period starting April 1, 2022, or a period spanning up to three and half years after the time the costs were incurred.[65] An evidentiary hearing regarding recovery of the Company's storm-related costs was to be held in early November 2021; however, that schedule has been vacated to allow parties more time gather and submit evidence regarding the settlement

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[63] S&P Global Ratings Direct, Research Update: Public Service Co. Of Colorado Ratings Affirmed; Outlook Stable, August 9, 2021, at 1.

[64] Colorado Public Utilities Commission, Proceeding No. 21A-0192EG, Non-Unanimous Comprehensive Settlement Agreement, October 25, 2021, Attachment A.

[65] Colorado Public Utilities Commission, Proceeding No. 21A-0192EG, Non-Unanimous Comprehensive Settlement Agreement, October 25, 2021.

agreement.[66] On November 4, 2021, the Commission set a hearing regarding recovery of these costs for late January and early February 2022.[67] Accordingly, there remains uncertainty as to what time period the Company's incremental costs associated with Winter Storm Uri will be recovered.

Q. HOW DOES THE COMPANY'S RISK OF COST RECOVERY ASSOCIATED WITH WINTER STORM URI COMPARE TO THE OTHER UTILITY OPERATING SUBSIDIARIES OF THE PROXY GROUP COMPANIES?

A. As shown in Attachment AEB-10, of the nine LDCs in the proxy group that incurred extraordinary incremental costs associated with Winter Storm Uri, all have received approval for full recovery of the storm-related gas costs or are subject to a pending settlement that would provide for full recovery of those gas costs. And unlike the Company, seven of the nine LDCs in the proxy group that incurred extraordinary incremental costs associated with Winter Storm Uri are receiving full recovery of the associated carrying charges or are subject to a pending settlement that would allow for the full recovery of those carrying costs.

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[66] Colorado Public Utilities Commission, Decision No. R21-0674-I, Proceeding No. 21A-0192EG, October 28, 2021.

[67] Colorado Public Utilities Commission, Proceeding No. 21A-0192EG, Interim Decision of Administrative Law Judge Melody Mirbaba Extending the Deadline for a Final Commission Decision, Rescheduling Evidentiary Hearings, and Establishing Deadlines, November 4, 2021.

Q. BASED ON THESE ANALYSES, WHAT IS YOUR CONCLUSION REGARDING THE LEVEL OF REGULATORY RISK FOR THE COMPANY'S GAS BUSINESS RELATIVE TO THAT OF THE PROXY GROUP COMPANIES?

A. As discussed, the ratemaking conventions used to develop the Company's rates and the mechanism used for the recovery of its costs are generally consistent with those relied upon by the majority of the utility operating subsidiaries of the proxy group companies, with the exception that the Company's PSIA rider is ending and Public Service has uncertainty as to whether it will be permitted to utilize a fully forecasted test year. Therefore, in my view, Public Service faces somewhat higher regulatory risk than the proxy group, particularly if the capital step proposal is not authorized. This increased risk has been demonstrated historically through the inability of Public Service to earn its authorized ROE for its gas business and supports an authorized ROE above the median or mean results of the proxy group.

B. <u>Clean Heat Transition</u>

Q. HAS COLORADO ENACTED LEGISLATION THAT INCREASES THE BUSINESS RISK OF THE COMPANY GOING FORWARD?

A. Yes. Colorado has enacted legislation to reduce GHG emissions economy-wide throughout the state and has enacted various legislation that addresses GHG reductions in specific sectors, including natural gas utilities. Specifically, this new legislation includes:

- Senate Bill ("SB") 21-264, which requires, among other things, that gas distribution utilities in Colorado file Clean Heat Plans to reduce GHG emissions from both utility operations and end-use customer combustion.

- House Bill ("HB") 21-1238, which modernizes gas demand side management programs, including the metrics used to determine their cost-effectiveness and "more realistically account for their value."
- HB 21-1286, which requires a building task force to be convened that will recommend building performance standards to achieve a reduction in GHGs for buildings of 7.0 percent by 2026 and 20.0 percent by 2030 relative to 2021 levels.

Q. WHAT STEPS HAS THE COMMISSION TAKEN TO CONSIDER THE IMPLEMENTATION OF THE LEGISLATION?

A. The Commission has recently issued a Notice of Proposed Rulemaking ("NOPR") to amend the rules regulating natural gas utilities.[68] Specifically, the NOPR proposes to "shift and broaden the focus of the rules to include not only regulation over jurisdictional gas utilities and their services but also their actions to reduce greenhouse gas emissions from the use of gas by their customers and from leaks in their facilities."[69] Through the NOPR, the Commission intends to establish new regulatory requirements for gas utility planning and implement the statutory changes adopted in the 2021 legislative session, including in SB 21-264 and HB 21-1238.[70]

Q. DOES THE NOPR PROPOSE CHANGES THAT COULD REDUCE THE USE OF NATURAL GAS GOING FORWARD?

A. Yes. In addition to changes to the rules regulating natural gas utilities and the implementation of the Clean Heat Plans and modernized gas DSM programs

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[68] Public Utilities Commission of Colorado, Decision No. C21-0610, Notice of Proposed Rulemaking, Proceeding No. 21R-0449G, September 22, 2021.

[69] *Id*., at 22.

[70] *Id*., at 4.

(which are focused primarily on emissions reductions relating to volumetric gas sales), the NOPR also proposes a number of changes that have the potential to decrease overall natural gas demand in the future.

Q. DOES THE NOPR INCREASE THE COMPANY'S BUSINESS RISK GOING FORWARD?

A. Yes. The NOPR contemplates proposals that create greater risk for Public Service's natural gas operations. Specifically, the NOPR proposes that the utility present "alternatives considered, including non-pipeline alternatives" for new business, capacity expansion, and safety planned projects that have an investment above $2 million,[71] and appears to contemplate the ability of the Commission to require a Certificate of Public Convenience and Necessity ("CPCN") for such investments above the same $2 million threshold.[72] This low threshold for analysis of investments that are fundamental to the utility meeting its obligation to serve would place Public Service in a position of increased risk compared to LDCs across the nation, much less the proxy group.

Q. HAS PUBLIC SERVICE SUPPORTED EFFORTS TO REDUCE METHANE EMISSIONS?

A. Yes. Public Service has stated its commitment to reducing methane emissions from its natural gas delivery business, as well as its commitment to helping its customers reduce their own carbon dioxide emissions from the use of natural gas.

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71 Proposed Rule 4553 (d)(III)(D). Safety is incorporated into this requirements by Proposed Rule 4553 (d)(III)((e)(II).

72 Proposed Rule 4553(d)(VI). System safety and integrity projects

Further, Public Service has worked with the sponsors of the Clean Heat Standard in SB21-264 to establish a comprehensive strategy for transitioning natural gas for a low-carbon future with equitable cost protections for customers.[73] The testimony of Company witnesses Ms. Brooke Trammell and Mr. Jeff Lyng also discusses Xcel Energy's Net-Zero Vision for Natural Gas in more detail.

Q. HOW WILL PUBLIC SERVICE RECOVER INVESTMENTS RELATED TO ACHIEVING THESE GOALS?

A. As discussed previously, the PSIA mechanism that had been used to recover pipeline infrastructure and safety investments was terminated as of December 31, 2021 and the PSIA deferral will only include certain safety-related costs through 2022. Beyond that period, there is currently no opportunity for Public Service to defer costs for such investments. Public Service is proposing a 2022 CTY combined with a 2023 and 2024 capital step increase to address ongoing capital needs, and a stay-out provision through 2024, as explained by Mr. Berman. Further, Public Service is proposing a decoupling mechanism for the residential and small commercial customers of the natural gas operations. These financial steps, combined with a market-based ROE and capital structure, are proposed to ensure that Public Service is placed on solid financial footing to achieve emissions reduction goals. Further, Public Service's proposed stay out provision is intended to increase regulatory efficiency while creating price certainty for the Company, the

[73] *Id.*, at 15.

Commission and customers during the pendency of the NOPR and the adjudication of Public Service's first Clean Heat Plan.

Q. HOW DO THE RISKS FACED BY THE COMPANY ASSOCIATED WITH THE COMMISSION'S IMPLEMENTATION OF GAS PLANNING AND THE STATE'S EMISSIONS REDUCTION INITIATIVES COMPARE TO OTHER STATES AND JURISDICTIONS IN WHICH THE UTILITY OPERATING SUBSIDIARIES OF THE PROXY GROUP COMPANIES OPERATE?

A. Comparatively, Colorado has implemented relatively more aggressive decarbonization programs that create greater business risk to natural gas service than the proxy group companies face with respect to decarbonization. For example, the utility operating subsidiaries of the proxy group companies operate in 18 distinct states, 11 of which have expressly prohibited natural gas bans and 1 that has proposed legislation to prohibit bans on natural gas hookups.[74] Likewise, building electrification efforts have progressed in only 4 of the 18 states where the proxy group companies currently operate. Furthermore, 10 of the 18 states have not implemented state-wide greenhouse gas emissions reduction targets.[75] Decarbonization efforts are underway in 8 of the 18 states to varying degrees, including New Jersey (Energy Master Plan), Maryland (Clean and Renewable Energy Standard), Oregon (various legislation) and Washington (Clean Energy

[74] https://www.spglobal.com/marketintelligence/en/news-insights/latest-news-headlines/gas-ban-monitor-building-electrification-evolves-as-19-states-prohibit-bans-65518738.

[75] https://www.ncsl.org/research/energy/greenhouse-gas-emissions-reduction-targets-and-market-based-policies.aspx; https://www.c2es.org/document/greenhouse-gas-emissions-targets/.

Transformation Act).[76] Therefore, based on this information, in my view, Public Service has relatively greater risk going forward regarding the impact to its natural gas operations as compared to the proxy group.

Q. WHAT ARE YOUR OVERALL CONCLUSIONS REGARDING THE COMPANY'S BUSINESS RISKS RELATED TO GHG EMISSIONS REDUCTION INITIATIVES IN COLORADO?

A. The risks faced by Public Service resulting from recent Colorado environmental legislation and the NOPR are greater than those of the proxy group companies. Further, comparing ratemaking in Colorado to the proxy group demonstrates that there is greater risk in Colorado than in other jurisdictions. Over the last ten years, Public Service has not had the necessary support through rate design, capital structure and return on equity to maintain its financial strength. A decline in ratemaking methodology in Colorado was specifically noted by S&P, particularly relating to historical test years and below average equity returns.

To be successful in achieving the legislative Clean Heat goals and Public Service's Net-Zero Vision, Public Service will need to be on a strong financial foundation. Implementation of the Company's proposals regarding stepped increases in capital costs, decoupling, and financing (both return on equity and capital structure), will help provide the necessary financial foundation to achieve these goals. Absent these mechanisms, Public Service has significantly higher risk than the proxy group companies.

[76] *Id*.

C. Flotation Cost Risk

Q. WHAT ARE FLOTATION COSTS?

A. Flotation costs are the costs associated with the sale of new issues of common stock. These costs include out-of-pocket expenditures for preparation, filing, underwriting, and other issuance costs.

Q. ARE FLOTATION COSTS PART OF THE UTILITY'S INVESTED COSTS OR ITS EXPENSES?

A. Flotation costs are part of the invested costs of the utility, which are properly reflected on the balance sheet under "paid in capital." They are not current expenses, and, therefore, are not reflected on the income statement. Rather, like investments in rate base or the issuance costs of long-term debt, flotation costs are incurred over time. As a result, the majority of a utility's flotation cost is incurred prior to the test year but remains part of the cost structure that exists during the test year and beyond. As such, these costs should be recovered through the allowed ROE. To the extent a company is denied the opportunity to recover prudently-incurred flotation costs, actual returns will fall short of expected (or required) returns, thereby diminishing a company's ability to attract adequate capital on reasonable terms.

Q. IS THE NEED TO CONSIDER FLOTATION COSTS ELIMINATED BECAUSE PUBLIC SERVICE IS A WHOLLY-OWNED SUBSIDIARY OF XCEL ENERGY?

A. No. Although Public Service is a wholly-owned subsidiary of Xcel Energy, it is appropriate to consider flotation costs for two reasons. First, a substantial portion of Public Service's paid-in equity is the result of prior public issuances of common

stock made by Public Service at a time when Public Service was itself a publicly-traded entity. Second, wholly-owned subsidiaries receive equity capital from their parent and provide returns on the capital that roll up to the parent, which is designated to attract and raise capital based upon the returns of those subsidiaries. To deny recovery of issuance costs associated with the capital that is invested in the subsidiaries ultimately penalizes the investors that fund the utility operations and inhibits the utility's ability to obtain new equity capital at a reasonable cost. This is particularly important for Public Service because it is planning significant capital expenditures in the near term.

Q. HAS XCEL ENERGY RECENTLY ISSUED COMMON EQUITY?

A. Yes, Xcel Energy issued approximately $712.8 million of common equity (11,845,000 common shares issued) in November 2020.[77] Flotation cost recovery is appropriate, however, regardless of whether an issuance occurs during, or is planned for, the test year because failure to allow recovery of flotation costs may deny Public Service the opportunity to earn its authorized cost of equity in the future.

Q. IS THE NEED TO CONSIDER FLOTATION COSTS RECOGNIZED BY THE ACADEMIC AND FINANCIAL COMMUNITIES?

A. Yes. The academic and financial communities recognize the need to reimburse investors for equity issuance costs in the same spirit that they recognize that investors should be reimbursed for the costs of issuing debt. This treatment is

[77] Provided by Company.

consistent with the philosophy of a fair rate of return. According to Dr. Shannon Pratt:

> Flotation costs occur when new issues of stock or debt are sold to the public. The firm usually incurs several kinds of flotation or transaction costs, which reduce the actual proceeds received by the firm. Some of these are direct out-of-pocket outlays, such as fees paid to underwriters, legal expenses, and prospectus preparation costs. Because of this reduction in proceeds, the firm's required returns on these proceeds equate to a higher return to compensate for the additional costs. Flotation costs can be accounted for either by amortizing the cost, thus reducing the cash flow to discount, or by incorporating the cost into the cost of capital. Because flotation costs are not typically applied to operating cash flow, one must incorporate them into the cost of capital.[78]

Q. HOW DID YOU CALCULATE THE FLOTATION COSTS FOR PUBLIC SERVICE?

A. My flotation cost calculation was based on the equity issuance costs that were incurred by Xcel Energy and its predecessors. That flotation cost percentage is then applied to the expected dividend yields for the proxy group companies. Based on the issuance costs shown in Attachment AEB-11 historically incurred by the Company, flotation costs for Public Service are approximately 0.09 percent (*i.e.*, 9 basis points) for the proxy group.

Q. DID YOU MAKE AN EXPLICIT ADJUSTMENT TO YOUR DCF RESULTS FOR FLOTATION COSTS?

A. No, I did not. Rather, I considered flotation costs along with company-specific business and financial risks in determining where within the range of reasonable results the ROE for the Company should be set.

[78] Shannon P. Pratt, Cost of Capital Estimation and Applications, Second Edition at 220-221.

IX. CAPITAL STRUCTURE

Q. IS THE CAPITAL STRUCTURE OF THE COMPANY AN IMPORTANT CONSIDERATION IN THE DETERMINATION OF THE APPROPRIATE ROE?

A. Yes. All else equal, a higher debt ratio increases the risk to investors. For debt holders, higher debt ratios result in a greater portion of the available cash flow being required to meet debt service, thereby increasing the risk associated with the payments on debt. The result of increased risk is a higher interest rate. The incremental risk of a higher debt ratio is more significant for common equity shareholders, who are the residual claimants on the cash flow of the Company. Therefore, the greater the debt service requirement, the less cash flow is available for common equity holders.

Q. WHAT IS PUBLIC SERVICE'S PROPOSED CAPITAL STRUCTURE?

A. As discussed in the Direct Testimony of Company witness Paul Johnson, Public Service is proposing two capital structures as a rate-making capital structure – one being the actual capital structure as of June 30, 2021, and the other being a forecasted capital structure as of December 31, 2022. The actual capital structure as of June 30, 2021 is composed of 55.64 percent common equity, 43.84 percent long-term debt and 0.52% short-term debt. The forecasted capital structure as of December 31, 2022 is composed of 55.66 percent common equity, 43.13 percent long-term debt and 1.21 percent short-term debt.

Q. HAVE YOU ANALYZED THE CAPITAL STRUCTURES OF THE PROXY GROUP COMPANIES?

A. Yes. I calculated the percentages of common equity, long-term debt and short-term debt over the most recent two years for each of the utility operating subsidiaries of the proxy group companies. Because the cost of equity is established based on the return that is derived from the risk-comparable proxy group, it is reasonable to look to the proxy group average capital structure to benchmark the equity ratio for the Company. As shown in Attachment AEB-12, the equity ratios for the utility operating subsidiaries of the proxy group range from 41.92 percent to 63.28 percent, with a median of 54.43 percent in the most recent year. Public Service's proposed equity ratios of 55.64 percent and 55.66 percent are within the range of equity ratios of the proxy group. Accordingly, I consider the proposed equity ratios to be reasonable.

Q. ARE THERE OTHER FACTORS TO BE CONSIDERED IN SETTING THE COMPANY'S CAPITAL STRUCTURE?

A. Yes. The credit rating agencies' responses to market conditions facing utilities must also be considered when determining the equity ratio. First, as discussed previously in my testimony, all three rating agencies have noted that the TCJA resulted in negative implications for utility cash flows and suggested that greater financial support could be achieved through thicker equity ratios or higher ROEs.

Furthermore, S&P has continued to maintain a negative outlook for the utility industry in 2021, noting that so far in 2021 downgrades have outpaced upgrades with the median rating of the industry approaching the BBB category,

which would be the first time that has ever occurred.[79] S&P expects continued pressure on cash flows over the near-term as utilities continue to increase leverage to fund capital expenditure plans necessary to reduce greenhouse gas emission and improve safety and reliability.[80] The credit ratings agencies' continued concerns over the negative effects of the TCJA, COVID-19 and increased capital expenditures on the industry, and the risk associated with incremental natural gas costs incurred during Winter Storm Uri for the Company, underscore the importance of maintaining adequate cash flow metrics for the industry in general, and for Public Service specifically, in the context of this proceeding.

Q. IS THERE A RELATIONSHIP BETWEEN THE EQUITY RATIO AND THE AUTHORIZED ROE?

A. Yes. The equity ratio is the primary indicator of financial risk for a regulated utility such as Public Service. To the extent the equity ratio is reduced, it is necessary to increase the authorized ROE to compensate investors for the greater financial risk associated with a lower equity ratio.

Q. WILL THE CAPITAL STRUCTURE AND ROE AUTHORIZED IN THIS PROCEEDING AFFECT THE COMPANY'S ACCESS TO CAPITAL AT REASONABLE RATES?

A. Yes. The level of earnings authorized by the Commission directly affects the Company's ability to fund its operations with internally generated funds. Both bond

[79] S&P Global Ratings, "North American Regulated Utilities' Credit Quality Begins the Year on A Downward Path," April 7, 2021.

[80] *Id.*

investors and rating agencies expect a significant portion of ongoing capital investments to be financed with internally generated funds. In addition, it is important to recognize that because a utility's investment horizon is very long, investors require the assurance of a sufficiently high return to satisfy the long-run financing requirements of the assets placed into service. Those assurances, which often are measured by the relationship between internally generated cash flows and debt (or interest expense), depend quite heavily on the capital structure. As a consequence, both the ROE and capital structure are very important to debt and equity investors. Furthermore, considering the capital market conditions discussed in Section V, the authorized ROE and capital structure take on even greater significance.

Q. DID YOU ALSO EVALUATE THE COMPANY'S PROPOSED SHORT-TERM DEBT RATIO?

A. Yes. As discussed, I compared the Company's proposed capital structure to the capital structures of the utility operating subsidiaries of the proxy companies. As shown in Attachment AEB-12, the range established by the proxy group is from 0.00 percent to 11.63 percent. The Company's proposed short-term debt ratios of 0.52 percent and 1.21 percent are at the low end of the established by the proxy group. The Company's current short-term debt ratio is generally consistent with the median short-term debt ratio for operating subsidiaries of the proxy group companies of 0.58 percent.

Q. WHAT IS YOUR CONCLUSION REGARDING PUBLIC SERVICE'S PROPOSED CAPITAL STRUCTURE?

A. Considering that the Company's proposed equity and short-term debt ratios are well within the range established by the operating utility subsidiaries of the proxy group, it my conclusion that the Company's proposed capital structure is reasonable and appropriate for ratemaking purposes.

X. CONCLUSIONS AND RECOMMENDATION

Q. WHAT IS YOUR CONCLUSION REGARDING A FAIR ROE FOR PUBLIC SERVICE?

A. As discussed throughout my testimony, the authorized ROE should be a forward-looking estimate; therefore, the analyses supporting my recommendation rely on forward-looking inputs and assumptions (*e.g.*, projected earnings growth rates in the DCF model, forecasted risk-free rate and market risk premium in the CAPM analyses) and take into consideration capital market conditions, including the expected increasing interest rate environment and the underperformance of utility stocks as the economy emerges from the pandemic. The authorized ROE should also consider the relative regulatory, business, and financial risks of Public Service compared to the proxy group.

As discussed previously, the cost of equity ranges from 10.00 percent to 11.00 percent considering the results of all of the models presented in Figure AEB-D-14. Within this range, taking into consideration this range and the company-specific risk factors of Public Service's natural gas business, including its history of not earning the authorized ROE, the effects of the Clean Heat plan, and the recovery risk associated with the Company's considerable capital investment plan, I conclude that a reasonable ROE for Public Service in this proceeding is 10.25 percent using a current test year and 10.75 percent if a historical test year is used.

Figure AEB-D-14: Summary of Results

Constant Growth DCF						
	Minimum Growth Rate		Average Growth Rate		Maximum Growth Rate	
	Median	Mean	Median	Mean	Median	Mean
30-Day Average	9.31%	9.40%	9.86%	10.24%	11.03%	12.10%
90-Day Average	9.07%	9.31%	9.88%	10.17%	11.10%	12.03%
180-Day Average	8.88%	9.16%	9.86%	10.02%	10.90%	11.87%
Traditional CAPM - S&P 500 DCF						
	Current 30-Day Avg. 30-Year Treasury Bond Yield		Near-Term Proj'd. 30-Year Treasury Bond Yield		Long-Term Proj'd. 30-Year Treasury Bond Yield	
Value Line Betas	11.40%		11.47%		11.57%	
Bloomberg Betas	10.90%		11.00%		11.14%	
Long-Term Avg. Beta	9.77%		9.94%		10.18%	
Empirical CAPM - S&P 500 DCF						
	Current 30-Day Avg. 30-Year Treasury Bond Yield		Near-Term Proj'd. 30-Year Treasury Bond Yield		Long-Term Proj'd. 30-Year Treasury Bond Yield	
Value Line Betas	11.70%		11.76%		11.84%	
Bloomberg Betas	11.33%		11.41%		11.51%	
Long-Term Avg. Beta	10.48%		10.61%		10.79%	
Treasury Yield Plus Risk Premium						
	Current 30-Day Avg. 30-Year Treasury Bond Yield		Near-Term Proj'd. 30-Year Treasury Bond Yield		Long-Term Proj'd. 30-Year Treasury Bond Yield	
	9.33%		9.60%		9.97%	

Q. WHAT IS YOUR CONCLUSION WITH RESPECT TO PUBLIC SERVICE'S REQUESTED CAPITAL STRUCTURE?

A. My conclusion is that Public Service's requested capital structure consisting of 55.64 percent common equity, 43.84 percent long-term debt and 0.52 percent short-term debt (as of June 30, 2021) and 55.66 percent common equity, 43.13 percent long-term debt and 1.21 percent short-term debt (as of December 31, 2022) is well within the range established by the proxy group. As such, I believe the requested capital structure is reasonable.

Q. DOES THIS CONCLUDE YOUR DIRECT TESTIMONY?

A. Yes.

BEFORE THE PUBLIC UTILITIES COMMISSION
OF THE STATE OF COLORADO

* * * *

IN THE MATTER OF ADVICE NO. 993-GAS OF PUBLIC SERVICE COMPANY OF COLORADO TO REVISE ITS COLORADO PUC NO. 6-GAS TARIFF TO INCREASE JURISDICTIONAL BASE RATE REVENUES, IMPLEMENT NEW BASE RATES FOR ALL GAS RATE SCHEDULES, AND MAKE OTHER PROPOSED TARIFF CHANGES EFFECTIVE FEBRUARY 24, 2022	)	**PROCEEDING NO. 22AL-_____G**

AFFIDAVIT OF ANN E. BULKLEY
ON BEHALF OF
PUBLIC SERVICE COMPANY OF COLORADO

I, Ann E. Bulkley, being duly sworn, state that the Direct Testimony and attachments were prepared by me or under my supervision, control, and direction; that the Direct Testimony and attachments are true and correct to the best of my information, knowledge and belief; and that I would give the same testimony orally and would present the same attachments if asked under oath.

Dated at Westborough, Massachusetts, this 21st day of January, 2022.

Ann E. Bulkley
Principal

Subscribed and sworn to before me this 21st day of January, 2022.

JAN 2 1 2022

Anita Basil
Notary Public

My Commission expires APR 07 2028

ANITA BASIL
Notary Public, Commonwealth of Massachusetts
My Commission Expires APRIL 7TH 2028