



**NORTH CAROLINA
PUBLIC STAFF
UTILITIES COMMISSION**

September 23, 2021

Ms. A. Shonta Dunston, Chief Clerk
North Carolina Utilities Commission
4325 Mail Service Center
Raleigh, North Carolina 27699-4300

Re: Docket No. G-5, Sub 632 – Application of Public Service Company of North Carolina, Inc., for a General Increase in Rates and Charges; and G-5, Sub 634 - Application for Approval to Modify Existing Conservation Programs and Implement New Conservation Programs

Dear Ms. Dunston:

Attached for filing in the above-referenced docket is the testimony and exhibit(s) of John R. Hinton, Director, Economic Research Division.

By copy of this letter, I am forwarding a copy to all parties of record by electronic delivery.

Sincerely,

Electronically submitted
s/ Gina C. Holt
Staff Attorney
gina.holt@psncuc.nc.gov

s/ John Little
Staff Attorney
john.little@psncuc.nc.gov

Attachment

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BEFORE THE NORTH CAROLINA UTILITIES COMMISSION

DOCKET NO. G-5, SUB 632
DOCKET NO. G-5, SUB 634

In the Matter of)	
Application of Public Service Company)	
of North Carolina, Inc., for a General)	TESTIMONY OF
Increase in Rates and Charges)	JOHN R. HINTON
)	ON BEHALF OF
In the Matter of)	THE PUBLIC STAFF –
Application for Approval to Modify)	NORTH CAROLINA
Existing Conservation Programs and)	UTILITIES COMMISSION
Implement New Conservation)	
Programs)	

BEFORE THE NORTH CAROLINA UTILITIES COMMISSION

DOCKET NO. G-5, SUB 632

DOCKET NO. G-5, SUB 634

**TESTIMONY OF JOHN R. HINTON
ON BEHALF OF THE PUBLIC STAFF
NORTH CAROLINA UTILITIES COMMISSION**

SEPTEMBER 24, 2021

1 **Q. PLEASE STATE YOUR NAME, POSITION, AND BUSINESS**
2 **ADDRESS FOR THE RECORD.**

3 A. My name is John R. Hinton and my business address is 430 North
4 Salisbury Street, Dobbs Building, Raleigh, North Carolina. I am the
5 Director of the Economic Research Division of the Public Staff –
6 North Carolina Utilities Commission (Public Staff). My qualifications
7 and experience are provided in Appendix A.

8 **Q. WHAT IS THE PURPOSE OF YOUR TESTIMONY IN THIS**
9 **PROCEEDING?**

10 A. The purpose of my testimony is to present to the North Carolina
11 Utilities Commission (Commission) the results of my analysis and my
12 recommendations as to the fair rate of return to be used in
13 establishing rates for natural gas distribution utility service
14 provided by Public Service Company of North Carolina, Inc. (PSNC
15 or the Company), and to discuss the Company's gas extension

1 practices for residential and commercial customers that involve
2 customer contribution in aid of construction (CIAC) costs.

3 **Q. WHAT IS THE CURRENTLY APPROVED COST OF CAPITAL FOR**
4 **PSNC?**

5 A. In the last PSNC general rate case (Docket No. G-5, Sub 565), the
6 Commission approved an overall cost of capital of 7.53%, comprised
7 of a capital structure ratio of 44.62% long-term debt at a cost rate of
8 5.52%, 3.38% short-term debt at a cost rate of 0.77%, and 52.00%
9 common equity at a cost rate of 9.70%.

10 **Q. WHAT IS THE COST OF CAPITAL REQUESTED BY PSNC IN THIS**
11 **PROCEEDING?**

12 A. PSNC witness Spaulding's supplemental testimony updated the
13 Company's requested overall cost of capital or rate of return to
14 7.59%. This rate of return is based on a capital structure consisting
15 of 43.79% long-term debt at a cost rate of 4.48%, 1.33% short-term
16 debt at a cost rate of 0.25%, and 54.88% common equity at a cost
17 rate of 10.25% as noted in the testimony of Company witness
18 Nelson.

19 **Q. HOW DOES PSNC WITNESS NELSON DEVELOP HER**
20 **RECOMMENDED 10.25% COST OF EQUITY?**

21 A. Company witness Nelson utilizes three cost of equity methods: (1)
22 the Discounted Cash Flow (DCF) model; (2) the Capital Asset Pricing

1 Model (CAPM); and (3) the Risk Premium method. She applies these
2 three methodologies to a proxy group of seven publicly traded natural
3 gas distribution companies. Her first method relies on the Constant
4 Growth DCF Model t and Quarterly Growth DCF model. The
5 Constant Growth DCF model produces a range of estimates based
6 on the average of the mean and median from 9.47% to 10.98% and
7 the Quarterly Growth DCF produces a range of estimates from
8 9.63% to 11.14% as shown on Nelson Direct Exhibits 2 and 3. Ms.
9 Nelson includes results from both a general form of the CAPM and
10 an Empirical CAPM (ECAPM). The results of the general form CAPM
11 range from 12.48% to 13.01% and the results of the ECAPM range
12 from 12.95% to 13.34%. Witness Nelson's Risk Premium Model
13 relies on a regression equation using approved returns on equity
14 (ROE) with 30-year treasury yields to arrive at two cost of equity
15 estimates of 9.75% and 9.86%. She also recommends that the cost
16 of equity include an adder of 45 basis points to account for PSNC's
17 small size. Based on the results of her cost of equity models and
18 today's economic and financial environment, witness Nelson
19 recommends a cost of equity range of 9.60% to 10.75%, with an
20 ultimate recommendation of 10.25% cost rate for common equity.

1 **Q. WHAT IS THE OVERALL RATE OF RETURN**
2 **RECOMMENDED BY THE PUBLIC STAFF?**

3 A. The Public Staff recommends an overall rate of return of 6.95%. This
4 is based on a capital structure consisting of 47.71% long-term debt
5 at a cost rate of 4.45%%, 1.39% short-term debt at a cost rate of
6 0.25%, and 50.90% common equity at a cost rate of 9.48%.

7 **Q. HOW IS THE REMAINDER OF YOUR TESTIMONY**
8 **STRUCTURED?**

9 A. The remainder of my testimony is structured as follows:
10 I. Legal and Economic Guidelines for Fair Rate of Return
11 II. Current Financial Market Conditions
12 III. Appropriate Capital Structure and Cost of Debt
13 IV. Cost of Common Equity Capital
14 V. Review of Nelson Testimony
15 VI. Summary and Recommendations for the Cost of Capital
16 VII. Revisions to the Gas Extension Feasibility Model

17 **I. LEGAL AND ECONOMIC GUIDELINES FOR FAIR RATE OF RETURN**

18 **Q. PLEASE BRIEFLY DESCRIBE THE ECONOMIC AND LEGAL**
19 **FRAMEWORK OF YOUR ANALYSIS.**

20 A. Public utilities possess certain characteristics of natural monopolies.
21 For instance, it is more efficient for a single firm to provide a service
22 such as natural gas utility service than for two or more firms to offer

1 the same service in the same area. Therefore, regulatory bodies
2 have assigned franchised territories to public utilities to provide
3 services more efficiently and at a lower cost to consumers.

4 **Q. WHAT IS THE ECONOMIC RELATIONSHIP BETWEEN RISK AND**
5 **THE COST OF CAPITAL?**

6 A. The cost of equity capital to a firm is equal to the rate of return
7 investors expect to earn on the firm's securities given the securities'
8 level of risk. An investment with a greater risk will require a higher
9 expected return by investors. In *Federal Power Com. v. Hope Natural*
10 *Gas Co.*, 320 U.S. 591, 603, (1944) (*Hope*), the United States
11 Supreme Court stated:

12 [T]he return to the equity owner should be
13 commensurate with returns on investments in other
14 enterprises having corresponding risks. That return,
15 moreover, should be sufficient to assure confidence in
16 the financial integrity of the enterprise, so as to
17 maintain its credit and to attract capital.

18 In *Bluefield Waterworks & Improvement Co. v. Public Service*
19 *Comm'n*, 262 U.S. 679, 692-93, (1923) (*Bluefield*) the United States
20 Supreme Court stated:

21 A public utility is entitled to such rates as will permit it
22 to earn a return on the value of the property which it
23 employs for the convenience of the public equal to that
24 generally being made at the same time and in the same
25 general part of the country on investments in other
26 business undertakings which are attended by
27 corresponding risks and uncertainties, but it has no
28 constitutional right to profits such as are realized or
29 anticipated in highly profitable enterprises or
30 speculative ventures. The return should be reasonably

1 sufficient to assure confidence in the financial
2 soundness of the utility, and should be adequate, under
3 efficient and economical management, to maintain and
4 support its credit and enable it to raise the money
5 necessary for the proper discharge of its public duties.
6 A rate of return may be reasonable at one time and
7 become too high or too low by changes affecting
8 opportunities for investment, the money market, and
9 business conditions generally.

10 These two decisions recognize that utilities are competing for the
11 capital of investors and provide legal guidelines as to how the
12 allowed rate of return should be set. The decisions specifically speak
13 to the standards or criteria of capital attraction, financial integrity, and
14 comparable earnings. The *Hope* decision, in particular, recognizes
15 that the cost of common equity is commensurate with risk relative to
16 investments in other enterprises. In competitive capital markets, the
17 required return on common equity will be the expected return
18 foregone by not investing in alternative stocks of comparable risk.
19 Thus, in order for the utility to attract capital, possess financial
20 integrity, and exhibit comparable earnings, the return allowed on a
21 utility's common equity should be that return required by investors for
22 stocks with comparable risk. As such, the return requirement of debt
23 and equity investors, which is shaped by expected risk and return, is
24 paramount in attracting capital.

25 It is widely recognized that a public utility should be allowed a rate of
26 return on capital that will allow the utility, under prudent management,
27 to attract capital under the criteria or standards referenced by the

1 *Hope* and *Bluefield* decisions. If the allowed rate of return is set too
2 high, consumers are burdened with excessive costs, current
3 investors receive a windfall, and the utility has an incentive to
4 overinvest. Likewise, customers will be charged prices that are
5 greater than the true economic costs of providing these services.
6 Consumers will consume too few of these services from a point of
7 view of efficient resource allocation. If the return is set too low, then
8 the utility stockholders will suffer because a declining value of the
9 underlying property will be reflected in a declining value of the utility's
10 equity shares. This could happen because the utility would not be
11 earning enough to maintain and expand its facilities to meet
12 customer demand for service, cover its operating costs, and attract
13 capital on reasonable terms. Lenders would shy away from the
14 company because of increased risk that the utility would default on
15 its debt obligations. Because a public utility is capital intensive, the
16 cost of capital is a very large part of its overall revenue requirement
17 and is a crucial issue for a company and its ratepayers.

18 The *Hope* and *Bluefield* standards are embodied in N.C. Gen. Stat.
19 § 62-133(b)(4), which requires that the allowed rate of return be
20 sufficient to enable a utility by sound management

21 to produce a fair return for its shareholders,
22 considering changing economic conditions and other
23 factors . . . to maintain its facilities and services in
24 accordance with the reasonable requirements of its
25 customers in the territory covered by its franchise, and

1 to compete in the market for capital funds on terms that
2 are reasonable and are fair to its customers and to its
3 existing investors.

4 In *State ex rel. Utils. Comm'n v. Cooper*, 366 N.C. 484, 739 S.E.2d
5 541 (2013) (*Cooper*), the North Carolina Supreme Court reversed
6 and remanded the Commission's Order in Docket No. E-7, Sub 989,
7 approving a stipulated ROE of 10.50% for Duke Energy Carolinas,
8 LLC (DEC). In its decision, the North Carolina Supreme Court held
9 that (1) the 10.50% ROE was not supported by the Commission's
10 own independent findings and analysis as required by *State ex rel.*
11 *Utils. Comm'n v. Carolina Util. Customers Ass'n*, 348 N.C. 452, 500
12 S.E.2d 693 (1988) (*CUCA I*), in cases involving nonunanimous
13 stipulations, and (2) the Commission must make findings of fact
14 regarding the impact of changing economic conditions on consumers
15 when determining the proper ROE for a public utility. In *Cooper*,
16 however, the Court's holding introduced a new factor to be
17 considered by the Commission regardless of whether there is a
18 stipulation.

19 In considering this new element, the Commission is guided by
20 ratemaking principles laid down by statute and interpreted by a body
21 of North Carolina case law developed over many years. According
22 to these principles, the test of a fair rate of return is an ROE that will
23 provide a utility, under sound management, the opportunity to: (1)
24 produce a fair profit for its shareholders in view of current economic

1 conditions, (2) maintain its facilities and service, and (3) compete in
2 the marketplace for capital. *State ex rel. Utils. Comm'n v. General*
3 *Tel. Co.*, 281 N.C. 318, 370, 189 S.E.2d 705, 738 (1972). Rates
4 should be set as low as reasonably possible consistent with
5 constitutional constraints. *State ex rel. Utils. Comm'n v. Pub. Staff-*
6 *North Carolina Utilities Com.*, 323 N.C. 481, 490, 374 S.E.2d 361,
7 366 (1988). The exercise of subjective judgment is a necessary part
8 of setting an appropriate ROE. *Id.* Thus, in a particular case, the
9 Commission must strike a balance that: (1) avoids setting a return so
10 low that it impairs the utility's ability to attract capital, (2) avoids
11 setting a return any higher than needed to raise capital on
12 reasonable terms, and (3) considers the impact of changing
13 economic conditions on consumers.

14 **Q. WHAT IS A FAIR RATE OF RETURN?**

15 A. The fair rate of return is simply a percentage which, when multiplied
16 by a utility's rate base investment, will yield the dollars of net
17 operating income a utility should reasonably have the opportunity to
18 earn. This dollar amount of net operating income is available to pay
19 the interest cost on a utility's debt capital and a return to the common
20 equity investor. The fair rate of return multiplied by the utility's rate
21 base yields the dollars a utility needs to recover in order to earn the
22 investor-required rate of return or cost of capital.

1 Q. HOW DID YOU DETERMINE THE FAIR RATE OF RETURN THAT
2 YOU RECOMMEND IN THIS PROCEEDING?

3 A. To determine the fair rate of return, I performed a cost of capital study
4 consisting of three steps. First, I determined the appropriate capital
5 structure for ratemaking purposes (i.e., the proper proportions of
6 each form of capital). Utilities normally finance assets with debt and
7 common equity. Because each of these forms of capital have
8 different costs, especially after income tax considerations, the
9 relative amounts of each form employed to finance the assets can
10 have a significant influence on the overall cost of capital, revenue
11 requirements, and rates. Thus, the determination of the appropriate
12 capital structure for ratemaking purposes is important to the utility
13 and to ratepayers. Second, I determined the cost rate of each form
14 of capital. The individual debt issues have contractual agreements
15 explicitly stating the cost of each issue. The embedded annual cost
16 of debt is calculated by considering these agreements and the
17 utility's books and records over the life of the bond. The cost of
18 common equity is more difficult to determine because it is based on
19 the investor's opportunity cost of capital, and there are no defined
20 terms associated with the investment. Various economic and
21 financial models or methods are available to measure the cost of
22 common equity. Third, by combining the appropriate capital structure

1 ratios for ratemaking purposes with the associated cost rates, I
2 calculated an overall weighted cost of capital or fair rate of return.

3 **II. CURRENT FINANCIAL MARKET CONDITIONS**

4 **Q. CAN YOU BRIEFLY DESCRIBE CURRENT FINANCIAL MARKET**
5 **CONDITIONS?**

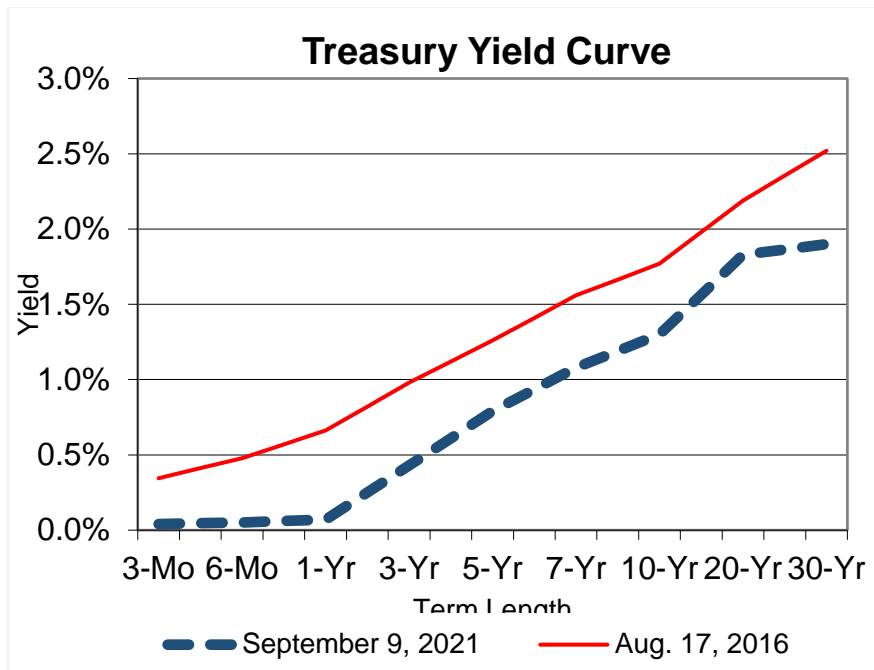
6 A. Yes. The cost of financing is much lower today than in the more
7 inflationary period of the 1990s and the cost of debt capital has fallen
8 since PSNC's last rate case in 2016. According to Mergent's Bond
9 Survey, the yield on long-term "A" rated public utility bonds, as of
10 August 2021 is 2.95% as compared to 3.77% observed for month-
11 ending October 2016 (when the Public Staff was in settlement
12 discussions with PSNC in Docket No. G-5, Sub 565). This suggests
13 that the cost of debt capital is lower than it was at the time of PSNC's
14 last general rate proceeding.

15 More recently, observed annual inflation rates have increased; the
16 overall PCE Index (Personal Consumption Expenditure Index) jumped
17 to 4.0% in June 2021 from 1.6 in February 2021. There have been
18 similar increases in the CPI-U (Consumer Price Index – Urban). A key
19 question today is whether these recent increases in inflation are
20 predictors of future inflationary trends or temporary price changes
21 caused by pent-up consumer demand and bottlenecks in the supply

1 chain.¹ At this time, contemporaneous increases have yet to transpire
2 in the utility bond market, as the increases in yields have been
3 relatively minor as illustrated in Hinton Exhibit I. A-rated utility bond
4 yields have fallen by 49 basis points from their high of 3.44% in March
5 2021 to 2.95% in August 2021. Since the Company's last general rate
6 case in 2016, there have been declines in the long-end and short-ends
7 of the yield curve shown below.²

¹ Alan S. Binder, "Don't Worry Too Much About the Inflation Surge," Wall Street Journal, July 7, 2021.

² Federal Reserve, H15 Selected Interest Rates, <https://www.federalreserve.gov/releases/h15/>



1

2 **Q. DID YOU RELY ON INTEREST RATE FORECASTS IN YOUR**
 3 **INVESTIGATION?**

4 A. No. While I believe forecasts of earnings and dividends influence
 5 investor behavior, I generally do not believe interest rate forecasts are
 6 reliable in determining the cost of equity. Rather, I believe that current
 7 interest rates, especially in relation to yields on long-term bonds, are
 8 more appropriate for ratemaking. This is because it is reasonable to
 9 expect that as investors are pricing bonds, they are basing their
 10 expected inflation-adjusted return on current interest rates and future
 11 inflationary expectations among other factors. To suggest the current
 12 bond yields do not reflect expectations of future interest rate levels
 13 suggests that investors do not utilize projections of future interest rates

1 in their decision-making or that the bond market is not efficient. I do
2 not think either position is true.

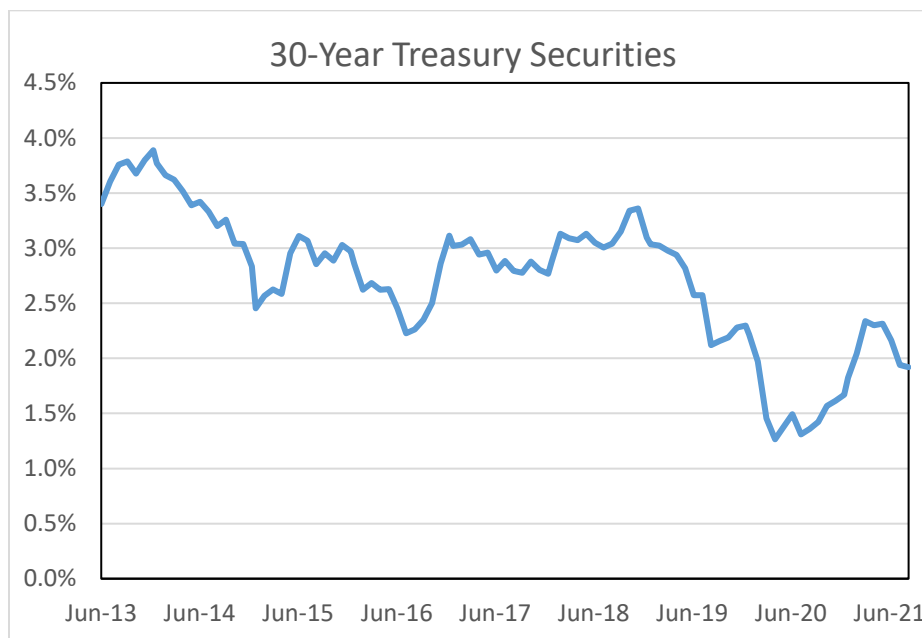
3 While I am confident in the market's ability to reasonably weight
4 forecasts of future interest rates, I am less confident in the
5 appropriateness of using of interest rate forecasts for utility rate cases
6 because I have seen numerous interest rate forecasts that do not
7 materialize as expected. An example of this is the reliance, in part, of
8 DEC's cost of capital witness Hevert in DEC's 2013 rate case, Docket
9 No. E-7, Sub 1026, upon predicted 30-year treasury yields published
10 by Blue Chip Financial Forecasts³ for his CAPM and Risk Premium
11 analyses. The December 1, 2012, Blue Chip Financial Forecasts
12 predicted that the average 30-year treasury yields would rise to 5.5%
13 by 2018. However, this long-term forecast was over 200 basis points
14 higher than the actual average 30-year treasury yields observed for
15 2018. In DEC's 2017 rate case, Docket No. E-7, Sub 1146, witness
16 Hevert used projected 30-year treasuries with a yield of 3.40%.⁴
17 However, while the forecast errors associated with these projected 30-
18 year treasury securities were smaller, this predicted yield for 2019 was

³ The source of the forecast is noted, T vol. 2, 85-86, Docket No. E-7, Sub 1026.

⁴ See Order Accepting Stipulation, Deciding Contested Issues, and Requiring Revenue Reduction, *Application of Duke Energy Carolinas, LLC, for Adjustment of Rates and Charges Applicable to Electric Utility Service in North Carolina*, Docket No. E-7, Sub 1146, at 39, (N.C.U.C. June 22, 2018), reversed on other grounds, *State ex rel. Utils. Comm'n v. Stein*, 375 N.C. 870, 851 S.E.2d 237 (2020).

1 still over 140 basis points larger than the actual yields observed in
2 2019.

3 Another example is the interest rate prediction of Aqua North Carolina,
4 Inc.'s (Aqua) rate of return witness Pauline Ahern in Aqua's 2013 rate
5 case, Docket No. W-218, Sub 363.⁵ Ms. Ahern testified to several
6 forecasts of 30-year Treasury bond yields that were predicted to rise
7 to 4.3% in 2015, 4.7% in 2016, 5.2% in 2017, and 5.5% for 2020-
8 2024.⁶ As illustrated in the graph below, these forecasts significantly
9 over-estimated the actual interest rates for 30-year Treasury bonds.



10

11 In addition, the tendency of economists to make overstated interest
12 rate predictions in the last ten years was addressed in a December

⁵ In 2013, Ms. Ahern was a Principal with AUS Consultants. She is currently Executive Advisor at ScottMadden, Inc.

⁶ T vol. 2, 13-14, Docket No. W-218, Sub 363.

1 14, 2019, Wall Street Journal article entitled, “Economists Got the
2 Decade All Wrong. They’re Trying to Figure Out Why”, and attached
3 as Hinton Exhibit 2. The foregoing examples illustrate why I tend to
4 place more weight on current market interest rates that are inherently
5 forward-looking, as they reflect investor expectations of both current
6 and future returns on bonds, and to an extent, future rates of inflation.

7 **III. APPROPRIATE CAPITAL STRUCTURE AND COST OF DEBT**

8 **Q. FOR RATEMAKING, HOW DOES A COMPANY’S CAPITAL**
9 **STRUCTURE IMPACT THE COST OF PROVIDING UTILITY**
10 **SERVICES?**

11 A. Typically, a local distribution company (LDC) obtains external capital
12 from investors by borrowing debt and issuing common equity.
13 However, PSNC obtains its equity capital from its parent company
14 Dominion Energy Inc., (Dominion). The capital structure is simply a
15 representation of how a utility’s assets are financed. It is the relative
16 proportions or ratios of debt and common equity to the total of these
17 forms of capital.

18 Debt and equity capital have different costs. Common equity is far
19 more expensive than debt for ratemaking purposes for two reasons.
20 First, as mentioned earlier, there are income tax considerations.
21 Interest on debt is deductible for purposes of calculating income
22 taxes. The cost of common equity, on the other hand, must be

1 “grossed up” to allow the utility sufficient revenue to pay income
2 taxes and to earn its cost of common equity on a net or after-tax
3 basis. Therefore, the amount of revenue the utility must collect from
4 ratepayers to meet income tax obligations is directly related to both
5 the common equity ratio in the capital structure and cost of common
6 equity. A second reason for this cost difference is that the cost of
7 common equity must be set at a marginal or current cost rate.
8 Conversely, the cost of long-term debt is set at an embedded rate
9 because the utility is incurring costs that were previously established
10 in contracts with security holders.

11 Because the Commission has the duty to promote economical utility
12 service, it must decide whether a utility’s requested capital structure
13 is appropriate for ratemaking purposes. An example of the cost
14 difference between debt and equity can be seen in the Company’s
15 filing. Based upon the Company’s requested capital cost rates, each
16 dollar of its common equity and each dollar of its long-term debt that
17 support the retail rate base have the following approximate annual
18 costs (including income tax and regulatory fee expense) to
19 ratepayers: each dollar of common equity costs ratepayers
20 approximately 12 cents; and each dollar of long-term debt costs
21 ratepayers approximately four cents.

1 Because of the capital cost differences, an appropriate capital
2 structure for ratemaking purposes should be fair to both ratepayers
3 and the utility's debt and equity investors. An appropriate capital
4 structure should contain balances of debt and equity that provide
5 capital cost and income tax savings without a corresponding increase
6 in the overall cost of capital due to the increased financial risk.
7 Therefore, a concern with the Company's capital structure is that the
8 debt and equity ratios adopted in determining the overall rate of return
9 on rate base investment should be no greater than required to allow
10 PSNC to qualify for reasonable credit ratings and to provide the ability
11 to attract capital.

12 **Q. WHY IS THE APPROPRIATE CAPITAL STRUCTURE IMPORTANT**
13 **FOR RATEMAKING PURPOSES?**

14 A. For companies that do not have monopoly power, the price that an
15 individual company charges for its products or services is set in a
16 competitive market, and that price is generally not influenced by the
17 company's capital structure. However, the capital structure that is
18 determined to be appropriate for a regulated public utility, which has
19 a monopoly, has a direct bearing on the fair rate of return and
20 revenue requirement, and the prices charged to captive ratepayers.

1 **Q. WHAT CAPITAL STRUCTURE HAS THE COMPANY**
2 **REQUESTED IN THIS CASE?**

3 A. Company witnesses Phibbs and Nelson propose the use of a capital
4 structure of 43.79% long-term debt, 1.33% short-term debt, and
5 54.88% common equity as shown on Spaulding Direct Exhibit 6 of
6 the Company's Application. This proposal is derived by estimating
7 the actual balances of long-term debt and common equity as of June
8 30, 2021, using a 13-month average balance of gas inventory as a
9 proxy for short-term debt.

10 **Q. DO YOU SUPPORT THE CAPITAL STRUCTURE PROPOSED BY**
11 **THE COMPANY?**

12 A. No. I have concerns with the use of a 54.88% common equity ratio
13 in the proposed capital structure, which would provide an excessive
14 percentage of equity that is not necessary to maintain the Company's
15 credit ratings, and is not reflective of PSNC's historical capitalization
16 ratio and its currently approved common equity ratio of 52.00%.

17 As of March 31, 2021, Moody's Investors Service, Inc.'s (Moody's)
18 creditworthiness metric, Cash Flow from Operations (pre-working
19 capital) divided by PSNC's debt yielded a 21.6 times, which is in
20 alignment with Moody's expectations. Shown below are Moody's
21 calculations of the Cash Flow metric and the Debt to Book

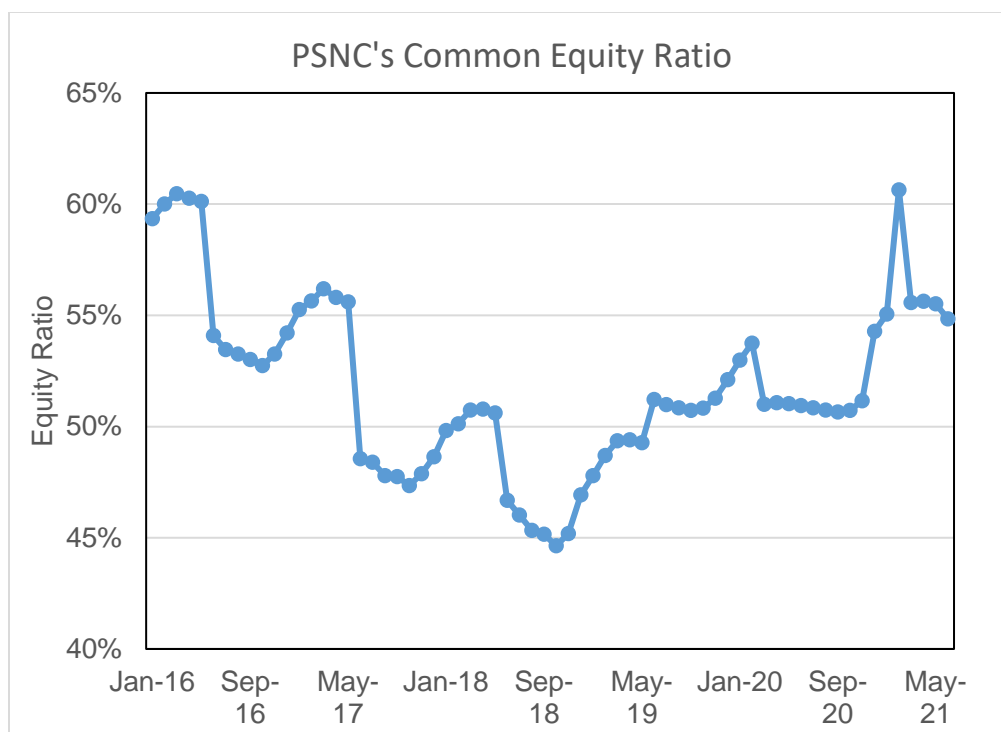
1 Capitalization metric for PSNC, both of which include the Company's
2 long-term and short-term debt balances.

Moody's Financial Scorecard	Cash Flow Pre-WC from Operations / Debt	Debt / Book Capitalization
Mar. 31, 2021	21.6%	39.9%
Dec. 31, 2020	14.3%	41.0%
Dec. 31, 2019	12.6%	43.1%
Dec. 31, 2018	12.1%	47.2%
Dec. 31, 2017	20.4%	44.0%

3
4 The fact that PSNC's Cash Flow metric has been both above and
5 below 15%, a benchmark for Moody's, suggests that PSNC does not
6 require a ratemaking structure with a 54.88% equity ratio; rather the
7 approved 52.00% common equity ratio has adequately contributed
8 to its ability to maintain its "Baa1" credit rating with a "Stable" outlook
9 as reported in the Moody's Investors Service report in Hinton Exhibit
10 3.

11 Shown below is a graph of PSNC's common equity ratio since
12 January 2016, which includes the period that SCANA Corp., which
13 was the parent company of PSNC, merged with Dominion in January
14 2019. The graph illustrates that the Company's average balance of
15 equity has hovered around 51.15%, and has averaged 51.97% since

1 the 2019 merger. The spike in the equity ratio in February 2021 was
 2 due to paying off a current debt of \$150 million, and financing the
 3 shortfall with over \$200 million in notes payable (the largest amount
 4 recorded to date) in February, and then issuing a \$150 million, 30-
 5 year bond at 3.10% the following month.



6

7 **Q. WHAT APPROACH DO YOU RECOMMEND TO DETERMINE A**
 8 **REPRESENTATIVE AND REASONABLE CAPITAL STRUCTURE?**

9 A. I typically recommend a capital structure for ratemaking purposes
 10 based on a 13-month historical average of long-term debt, short-term
 11 debt, and common equity; as of June 30, 2021, the Company's
 12 average capital structure contains 53.65% common equity as shown
 13 on Hinton Exhibit 4. Company witness Nelson argues that the

1 Company's request of a 54.88% common equity ratio is consistent
2 with those reported to the Securities and Exchange Commission
3 (SEC) by her group of comparable companies with a mean equity
4 ratio of 52.90% and a median equity ratio of 55.26%, as shown in
5 Nelson Direct Exhibit 8.

6 I recommend the use of a hypothetical capital structure containing
7 50.90% common equity based on the average capital structures
8 approved in general rate cases for LDCs in 2020 and 2021⁷ as
9 reported by Standard and Poor's (S&P) Capital IQ⁸ and shown on
10 Hinton Exhibit 5. In my opinion, the use of an SEC-based reported
11 capital structure can be misleading for regulatory applications as
12 companies often have non-regulated operations and other concerns
13 that are not necessarily appropriate for regulated utilities. As such, I
14 maintain that the Company's requested equity ratio is excessive, is
15 inconsistent with current industry practices, and will lead to a higher
16 cost of capital than is necessary for PSNC to maintain its credit rating
17 and attract capital.

⁷ General LDC rate cases from January 1, 2020, through September 8, 2021.

⁸ S&P Capital IQ, Research, Past Rate Cases. Approved equity ratios do not include decisions from Arkansas, Florida, Indiana, and Michigan, which include non-capital balances. Data downloaded on September 11, 2021.

1 **Q. WHAT CAPITAL STRUCTURE DO YOU RECOMMEND THE**
 2 **COMMISSION EMPLOY FOR RATE MAKING PURPOSES?**

3 A. I recommend that the following capital structure be employed for
 4 ratemaking purposes in this proceeding based on a 50.90% common
 5 equity ratio, a 1.39% ratio of short-term debt that is based on the
 6 Public Staff's recommended balance of gas inventory, and a resulting
 7 47.71% ratio of long-term debt.

8 PSNC Capital Structure

9 Thirteen-Month Average as of June 30, 2021

10	<u>Capital Item</u>	<u>Amount</u>	<u>Ratios</u>
11	Long-Term Debt	\$ 836,814,487	47.71%
12	Short-Term Debt	24,429,174	1.39%
13	<u>Common Equity</u>	<u>892,765,822</u>	<u>50.90%</u>
14	Total Capital	\$ 1,753,960,358	100.00%

15 **Q. WHAT IS YOUR RECOMMENDED COST RATE OF SHORT-TERM**
 16 **DEBT?**

17 A. For short-term debt, I accept the Company's proposed cost rate of
 18 0.25%, as reasonable for this proceeding.

19 **Q. WHAT IS YOUR RECOMMENDED COST RATE OF LONG-TERM**
 20 **DEBT?**

21 A. With respect to long-term debt, the Company's June 30, 2021,
 22 embedded cost rate is 4.48%. However, I do not recommend that
 23 cost rate for this proceeding. On January 31, 2020, Moody's
 24 downgraded PSNC's long-term debt to Baa1 from A3 noting that one

1 of its credit considerations was the impact of the rate freeze through
2 November 2021 that was a condition of this Commission's approval
3 of the merger of PSNC's parent company, SCANA, with Dominion.⁹

4 Another condition imposed by the Commission in its approval of the
5 merger of SCANA and Dominion was that a replacement cost of debt
6 would be imposed if the Company's debt were downgraded due to
7 the merger.¹⁰ The Company maintains that its 10-year, \$200 million
8 bond issued on March 30, 2020, was unaffected by the January 30,
9 2020 long-term debt rating downgrade by Moody's, despite the fact
10 that the Moody's report noted that one of its considerations for
11 downgrading PSNC was that the Company's financial profile was
12 hurt by the merger conditions that involved a rate freeze through
13 November 2021 and customer credits of \$1.3 million provided
14 annually in January of 2019, 2020, and 2021. PSNC's data
15 responses on the impact of the downgrade stated that the private
16 placement of this debt and the limited trading does not provide
17 market data to show any real time impact of the downgrade. The
18 Company noted that the National Association of Insurance
19 Companies, S&P, and Fitch Ratings did not downgrade its debt
20 rating. Furthermore, the Company noted that the emergence of

⁹ *Order Approving Merger Subject to Regulatory Conditions and Code of Conduct*, Docket No. E-22, Sub 551, Docket No. G-5, Sub 585, at 39 (November 19, 2018).

¹⁰ *Order Approving Merger Subject to Regulatory Conditions and Code of Conduct*, Docket No. E-22, Sub 551, Docket No. G-5, Sub 585, Regulatory Condition No. 8.2 (November 19, 2018).

1 COVID caused disruptions in the bond market that make the
2 increase in the yield associated with the March 30, 2020 issuance
3 not indicative of a stable market. Given the history of arguments
4 made by utilities on the need for strong credit ratings that lead to
5 lower costs of debt, I find PSNC's argument that the downgrade by
6 Moody's had no impact on the prices offered by bond investors
7 unpersuasive. Rather, I believe that bond investors attribute
8 significant weight to Moody's reporting of credit risk and it is
9 reasonable to believe that the that the downgrade impacted the
10 prices offered by investors for the 10-year \$200 million bond on
11 March 20, 2020, and for the 30-year \$150 million bond that was
12 priced on February 11, 2021.

13 While I accept that there is difficulty in ascertaining the precise dollar
14 impact in investors' pricing of the bonds and the subsequent increase
15 in the yields, I believe that the increase in the yields with the post
16 downgrade issues amounts to a ten basis point (bp) impact. I base
17 the 10 bp estimate on the Company's response that indicated a
18 possible five bp impact, a review of the 11 bp average spread
19 between Mergent's¹¹ A-rated and Baa-rated yields from March 2020
20 through August 2021 shown below, as well as my previous
21 investigations on the yield impacts of a one-notch downgrade by

¹¹ Mergent Bond Record, Mergent, Inc., September 2021.

1 Moody's for DEC and Duke Energy Progress, LLC.¹² As such, I
 2 recommend reducing the cost rate of each of the two subsequent
 3 debt issues by ten bp as a reasonable adjustment that is consistent
 4 with Regulatory Condition 8.2 that requires that PSNC's customers
 5 be held harmless from the impacts of a debt downgrade. The impact
 6 of the recommended ten bp reduction on the two debt issues of \$200
 7 million and \$150 million issues reduces the embedded cost of debt
 8 from 4.48% to 4.45%.

	Mergent Bond Record Public Utility Bonds			
	A-rated	Baa rated	Three-notch Spread	One-notch Spread
Mar-20	3.50%	3.96%	0.46%	0.15%
Apr-20	3.19%	3.82%	0.63%	0.21%
May-20	3.14%	3.63%	0.49%	0.16%
Jun-20	3.07%	3.44%	0.37%	0.12%
Jul-20	2.74%	3.09%	0.35%	0.12%
Aug-20	2.73%	3.06%	0.33%	0.11%
Sep-20	2.84%	3.17%	0.33%	0.11%
Oct-20	2.95%	3.27%	0.32%	0.11%
Nov-20	2.85%	3.17%	0.32%	0.11%
Dec-20	2.77%	3.05%	0.28%	0.09%
Jan-21	2.91%	3.18%	0.27%	0.09%
Feb-21	3.09%	3.37%	0.28%	0.09%
Mar-21	3.44%	3.72%	0.28%	0.09%
Apr-21	3.30%	3.57%	0.27%	0.09%
May-21	3.33%	3.58%	0.25%	0.08%
Jun-21	3.16%	3.41%	0.25%	0.08%
Jul-21	2.95%	3.20%	0.25%	0.08%
Aug-21	2.95%	3.19%	0.24%	0.08%
			Average	0.11%

¹² Docket Nos. E-7, Sub 1214, and E-2 Sub 1219.

1

2

IV. COST OF COMMON EQUITY CAPITAL

3 **Q. HOW DO YOU DEFINE THE COST OF COMMON EQUITY**
4 **CAPITAL?**

5 A. The cost of equity capital for a firm is the expected rate of return on
6 common equity that investors require in order to induce them to
7 purchase shares of the firm's common stock. The return is expected
8 or forward-looking because the investor buys a share of the firm's
9 common stock and does not know with certainty what his returns will
10 be in the future. Furthermore, the cost of capital reflects opportunity
11 costs in that the investor foregoes the opportunity to invest in other
12 comparable risk investments.

13 **Q. HOW DID YOU DETERMINE THE COST OF COMMON EQUITY**
14 **CAPITAL FOR THE COMPANY?**

15 A. I used the DCF model and a regression analysis of approved returns
16 for LDCs and diversified gas companies with local distribution utilities
17 to determine the cost of equity. As a check method, I performed a
18 Comparable Earnings Analysis on my group of comparable
19 companies.

20

A. DCF METHOD

21 **Q. PLEASE DESCRIBE YOUR DCF ANALYSIS.**

1 A. The DCF model is a method of evaluating the expected cash flows
2 from an investment by giving appropriate consideration to the time
3 value of money. The DCF model is based on the theory that the price
4 of the investment will equal the discounted cash flows of returns. The
5 model provides an estimate of the rate of return required to attract
6 common equity financing as a function of the market price of a stock,
7 the company's dividends, and investors' growth expectations. The
8 return to an equity investor comes in the form of expected future
9 dividends and price appreciation. However, as the new price will
10 again be the sum of the discounted cash flows, price appreciation is
11 ignored and attention is instead focused on the expected stream of
12 dividends. Mathematically, this relationship may be expressed as
13 follows:

14 Let D_1 = expected dividends per share over the next twelve
15 months;

16 g = expected growth rate of dividends;

17 k = cost of equity capital; and

18 P = price of stock or present value of the future income
19 stream.

20 Then,

$$21 \quad P = \frac{D_1}{1+k} + \frac{D_1(1+g)}{(1+k)^2} + \frac{D_1(1+g)^2}{(1+k)^3} + \dots + \frac{D_1(1+g)^{t-1}}{(1+k)^t}$$

24 This equation represents the amount an investor would be willing to
25 pay for a share of common stock with a dividend stream over the

1 future periods. Using the formula for a sum of an infinite geometric
2 series, this equation may be reduced to:

$$3 \quad P = \frac{D_1}{k-g}$$

6 Solving for k yields the DCF equation:

$$7 \quad k = \frac{D_1 + g}{P}$$

10 Therefore, the rate of return on equity capital required by investors is
11 the sum of the dividend yield (D_1/P) plus the expected long-term
12 growth rate in dividends (g).

13 **Q. HOW DID YOU APPLY THE DCF MODEL TO DETERMINE THE**
14 **COST OF EQUITY?**

15 A. Since PSNC is a wholly owned subsidiary of Dominion, the Company
16 does not have any publicly traded stock. Therefore, there is no
17 explicit market information to show what investors would pay for the
18 stock. For this reason, I could not apply the DCF method directly to
19 PSNC. However, the cost of equity capital is not unique to any
20 particular firm. Rather, it is a cost shared by firms whose equity
21 shares are considered by investors to be risk-comparable
22 investments. In order to estimate the required rate of return, I have
23 identified a group of comparable companies whose market
24 information indicates the required investor return for PSNC.

1 **Q. HOW DID YOU IDENTIFY COMPANIES COMPARABLE IN**
2 **RISK TO PSNC?**

3 A. I began my analysis by reviewing ten companies that are identified by
4 the Value Line Investment Survey Standard Edition (Value Line) as the
5 Natural Gas Company industry group. From this group of companies, I
6 eliminated Nisource, Inc., due to a dividend cut in 2015. I then reviewed
7 the diversified natural gas companies followed by Value Line and found
8 two companies that were identified as having distribution operations.

9 **Q. WHAT MEASURES OF RISK DID YOU REVIEW TO DETERMINE**
10 **THE COMPARABILITY OF INVESTING IN PSNC WITH**
11 **INVESTING IN OTHER NATURAL GAS DISTRIBUTION**
12 **UTILITIES?**

13 A. I reviewed standard risk measures that are widely available to
14 investors and that are considered by most investors when making
15 investment decisions. The beta coefficient is a measure of the
16 sensitivity of a stock's price to overall fluctuations in the market. The
17 Value Line beta coefficient describes the relationship of a company's
18 stock price with the New York Stock Exchange Composite. A beta
19 value of less than 1.0 means that the stock's price is less volatile than
20 the movement in the market; conversely, a beta value greater than
21 1.0 indicates that the stock price is more volatile than the market.

1 I reviewed the Value Line Safety Rank, which measures the total risk
2 of a stock. The Safety Rank is calculated by averaging two variables:
3 (1) the stock's index of price stability, and (2) the Financial Strength
4 rating of the company.

5 I also reviewed the S&P and Moody's bond ratings, which are
6 assessments of the creditworthiness of a company. Credit rating
7 agencies focus on the creditworthiness of the particular bond issuer,
8 and conduct a detailed and thorough review of the potential areas of
9 business risk and financial risk of the company. These and other risk
10 measures I reviewed are shown in Hinton Exhibit 6 and are further
11 explained in Appendix B to my testimony.

12 **Q. HOW DID YOU DETERMINE THE DIVIDEND YIELD COMPONENT**
13 **OF THE DCF?**

14 A. I calculated the dividend yield by using the Value Line estimate of
15 dividends to be declared over the next 12 months, divided by the
16 price of the stock as reported in the Value Line Summary and Index
17 for each week of the 13-week period from June 18, 2021, through
18 September 10, 2021. A 13-week averaging period tends to smooth
19 out short-term variations in the stock prices. This process resulted in
20 an average dividend yield of 3.3% for the comparable group of LDCs.

1 **Q. HOW DID YOU DETERMINE THE EXPECTED GROWTH**
2 **RATE COMPONENT OF THE DCF?**

3 A. I employed the growth rates of the comparable group in earnings per
4 share (EPS), dividend per share (DPS), and book value per share
5 (BPS) as reported in Value Line over the past five and ten years. I
6 also employed forecasts of future growth rates as reported in Value
7 Line. The historical and forecasted growth rates are prepared by
8 analysts of an independent advisory service widely available to
9 investors and they should also provide an estimate of investor
10 expectations. I included both historical, known growth rates and
11 forecasted growth rates because it is reasonable to expect that
12 investors consider both sets of data in determining their
13 expectations. I should note that, in calculating an average or median
14 growth rate, I did not include negative historical growth rates in EPS,
15 DPS, and BPS. This is due to the fact that while negative growth
16 rates are possible, they are generally not the basis for investor
17 expectations with utility investing.

18 Finally, I incorporated the consensus of various analysts' forecasts
19 of five-year EPS growth rate projections as reported in Yahoo
20 Finance and three-year projected growth rate EPS forecast by
21 CFRA. The dividend yields and growth rates for each of the
22 companies and for the average for the comparable group are shown
23 in Hinton Exhibit 7.

1 **Q. WHAT IS YOUR CONCLUSION REGARDING THE COST OF**
2 **COMMON EQUITY TO THE COMPANY BASED ON THE DCF**
3 **METHOD?**

4 A. Based on my DCF analysis, I determined that a reasonable expected
5 dividend yield is 3.3%, with an expected growth rate of 5.9% to 6.5%.
6 As such, the analysis produces a cost of common equity range for
7 the comparable group of LDCs of 9.15% to 9.84%.

8 **B. REGRESSION ANALYSIS METHOD**

9 **Q. PLEASE DESCRIBE YOUR REGRESSION ANALYSIS METHOD.**

10 A. I used a regression analysis to analyze the relationship between
11 approved returns on equity for LDCs and Moody's Bond Yields for A-
12 rated utility bonds, which is a form of the equity risk premium method
13 that examines the risk premium associated with higher-risk
14 investments. The differential between the two rates of return is
15 indicative of the return investors require in order to compensate them
16 for the additional risk. This method considers the return premium
17 associated with an investment in a company's common stock over
18 an investment in a company's bonds.

19 A strength of this approach is that authorized returns on equity are
20 generally arrived at through lengthy investigations by various parties
21 with opposing views on the rate of return required by investors. Thus,
22 it is reasonable to conclude that the approved returns are good

1 estimates for the cost of equity. The next step is to incorporate a
2 contemporaneous cost of debt. I then use an ordinary least-squares
3 regression model¹³ that can be performed with spreadsheets that
4 have basic statistical functionality.

5 **Q. PLEASE DESCRIBE HOW YOU APPLIED A REGRESSION**
6 **ANALYSIS TO APPROVED RETURNS ON EQUITY WITH**
7 **NATURAL GAS UTILITY RATE CASES.**

8 A. The method I used relies on approved returns on common equity for
9 natural gas utility companies from various public utility commissions
10 that are published by the Regulatory Research Associates, Inc.
11 (RRA), with S&P Global Market Intelligence and Moody's "A" rated
12 Utility Bond Yields as shown on Page 1 of Hinton Exhibit 8. The results
13 from the regression analysis in this study and in other studies indicate
14 that there is a high correlation between the cost of equity and utility
15 bond yields.¹⁴

16 **Q. WHAT ARE THE RESULTS OF YOUR REGRESSION ANALYSIS?**

17 A. The results of the regression analysis indicate that the predicted cost
18 of equity is 9.49% as shown on Page 2 of Hinton Exhibit 8. As noted,
19 a statistical regression was performed in order to quantify the

¹³The least squares model is a form of mathematical regression analysis that finds the line of best fit that quantifies the relationship between an independent variable(s) and a dependent variable.

¹⁴ See Brigham, E., Shome, D., and Vinson, S., 1985. "The Risk Premium Approach to Measuring a Utility's Cost of Equity." Financial Management, Spring 14: 33-45.

1 relationship of allowed equity returns and bond costs. The results of
2 the regression analysis indicate a significant statistical relationship
3 between the approved equity returns and bond costs such that a
4 reduction of 10 bp in yields corresponds to a decrease of three bp in
5 ROE.¹⁵ Therefore, the regression analysis allows the historical
6 relationship of approved returns on equity and bond yields from 2007
7 through 2021 to be quantified and combined with six months of
8 recent yields to derive a predicted 9.49% cost rate for common
9 equity.

10 **C. COMPARABLE EARNINGS METHOD**

11 **Q. PLEASE DESCRIBE YOUR COMPARABLE EARNINGS**
12 **ANALYSIS THAT YOU USE AS A CHECK.**

13 A. My comparable earnings method analysis involves reviewing earned
14 returns on equity for my comparable group of natural gas utilities. This
15 approach is based on the decision in the *Hope* case cited earlier in my
16 testimony, which maintains that an investor should be able to earn a
17 return comparable to the returns available on alternative investments
18 with similar risks.

19 **Q. WHAT ARE SOME OF THE STRENGTHS AND WEAKNESSES**
20 **INHERENT IN THE COMPARABLE EARNINGS METHOD?**

¹⁵ The regression equation $ROE = 0.0867872 + 0.25424504 * 3.19\%$, indicates a significant statistical relationship between Moody's utility bond yields and approved ROEs with an adjusted $R^2 = 0.8593500$.

1 A. A strength of this method is that information on earned returns on
2 common equity is widely available to investors, and it is believed that
3 investors use actual earned returns as a guide in determining their
4 expected return on an investment. A weakness is that the earned return
5 on equity may include non-utility income and increased earnings
6 resulting from deferred income taxes. Furthermore, actual earned rates
7 of ROE can be impacted by factors outside a company's control, such
8 as weather and inflation. These unforeseen developments can cause
9 a company's earned rate of return on equity to exceed or fall short of
10 its cost of capital during any certain period, which tends to make this
11 method less reliable than other cost of capital methods. For this reason,
12 I use the results of this method as a check on the results of my DCF
13 analysis and Regression Method.

14 **Q. HOW DID YOU APPLY THE COMPARABLE EARNINGS METHOD?**

15 A. I examined the historical earned returns and near-term predicted
16 returns of my comparable group of LDCs as reported in Value Line, as
17 shown in Hinton Exhibit 9.

18 **Q. WHAT DID YOU CONCLUDE FROM YOUR COMPARABLE
19 EARNINGS ANALYSIS OF THE GROUP OF COMPARABLE
20 NATURAL GAS UTILITIES?**

21 A. Based on the earned rates of return, I conclude that the cost of equity
22 calculated using the Comparable Earnings analysis provides a

1 reasonable check on my DCF and Regression Analysis results. Under
2 the Comparable Earnings method, I calculated an average historical
3 earned return of 10.0% and a median earned return of 9.5%. In my
4 opinion, the median calculation is a better measure of central
5 tendency due to inclusion in the mean calculation of the 20.2% earned
6 return of National Fuel Gas and other excessively high-earned
7 returns. As such, I believe the median earned return of 9.5% is more
8 reflective of investors' expected required ROEs.

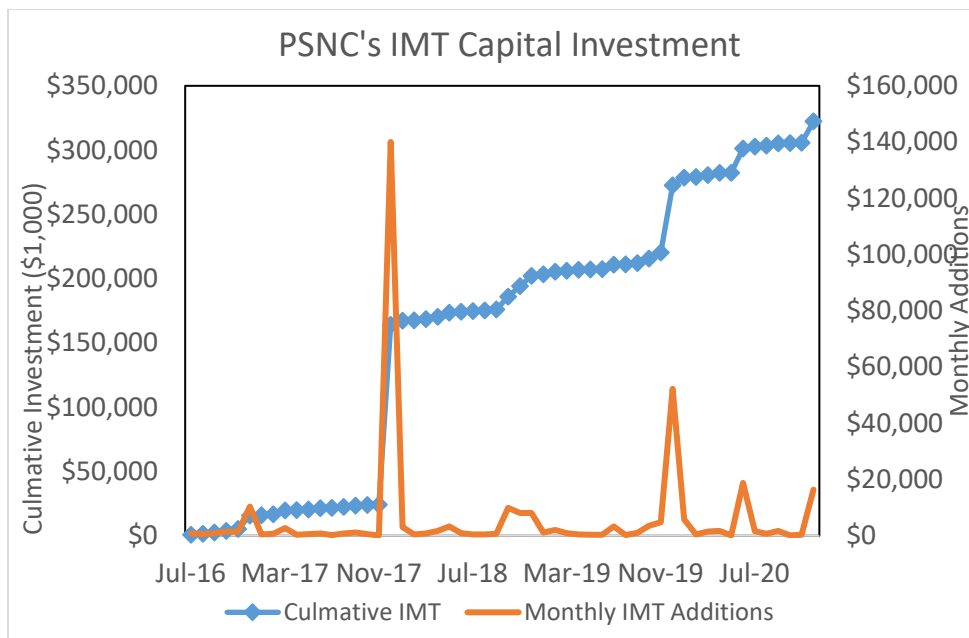
9 **Q. WHAT IS YOUR RECOMMENDED COST OF EQUITY FOR THE**
10 **COMPANY BASED ON YOUR OVERALL STUDY?**

11 A. I recommend a 9.48% cost rate for common equity, as shown in
12 Hinton Exhibit 10, where I average the four results of my two
13 methods. The results of my DCF model produce a cost of equity of
14 9.20% using historical growth rates. If I assume that investors equally
15 weigh historical growth and forecasts, the DCF model produces a
16 9.44% cost rate of equity. If I assume investors use only predicted
17 growth rates of earnings, dividends, and book value, the DCF model
18 produces a 9.84% cost rate. I combined these three DCF results with
19 my Regression Analysis result of 9.49% to yield an average cost of
20 equity of 9.48%, which is my recommended cost of common equity
21 for the Company.

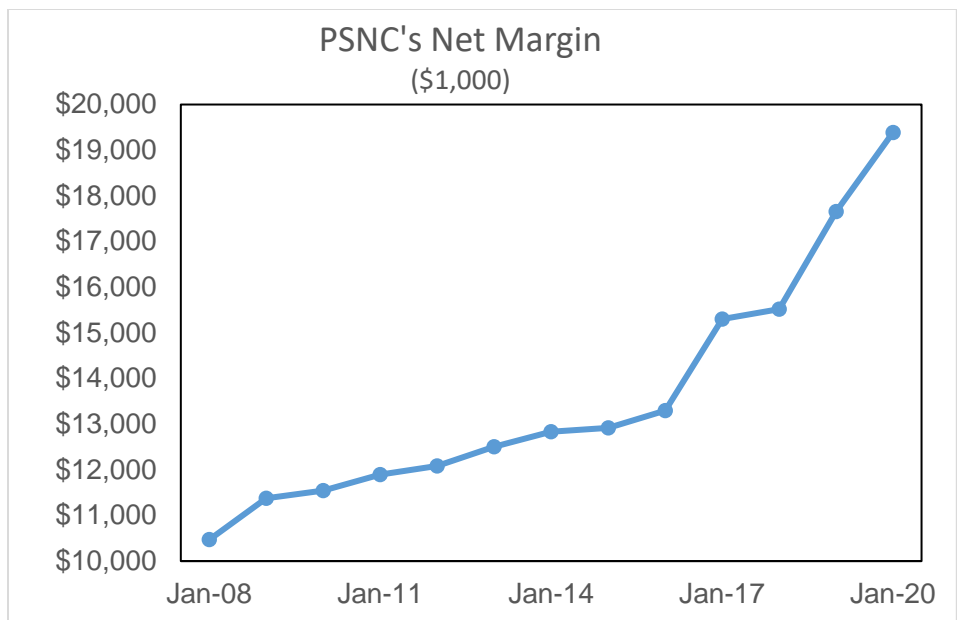
1 Q. WHAT OTHER EVIDENCE DID YOU CONSIDER IN YOUR
2 ASSESSMENT OF THE REASONABLENESS OF YOUR
3 RECOMMENDED RETURN?

4 A. In assessing the reasonableness of my recommendation, I
5 considered the pre-tax interest coverage ratio produced by my cost
6 of capital recommendation. Based on the recommended capital
7 structure, cost of debt, and cost of equity, the pre-tax interest
8 coverage ratio is approximately 3.9, as shown on Hinton Exhibit 13.
9 This indicator of credit quality suggests that PSNC has an adequate
10 opportunity to continue to qualify for a “Baa1” bond rating.

11 My reasonableness assessment also factors in the role that the
12 Integrity Management Tracker (IMT) has in reducing regulatory lag,
13 which is seen as a supportive regulatory policy by investors. The
14 graph below shows the additional monthly plant additions associated
15 with the Company’s IMT mechanism, which as of December, 2020,
16 amounted to approximately \$322 million of additional capital
17 investment since the tracker was implemented in July 2016.



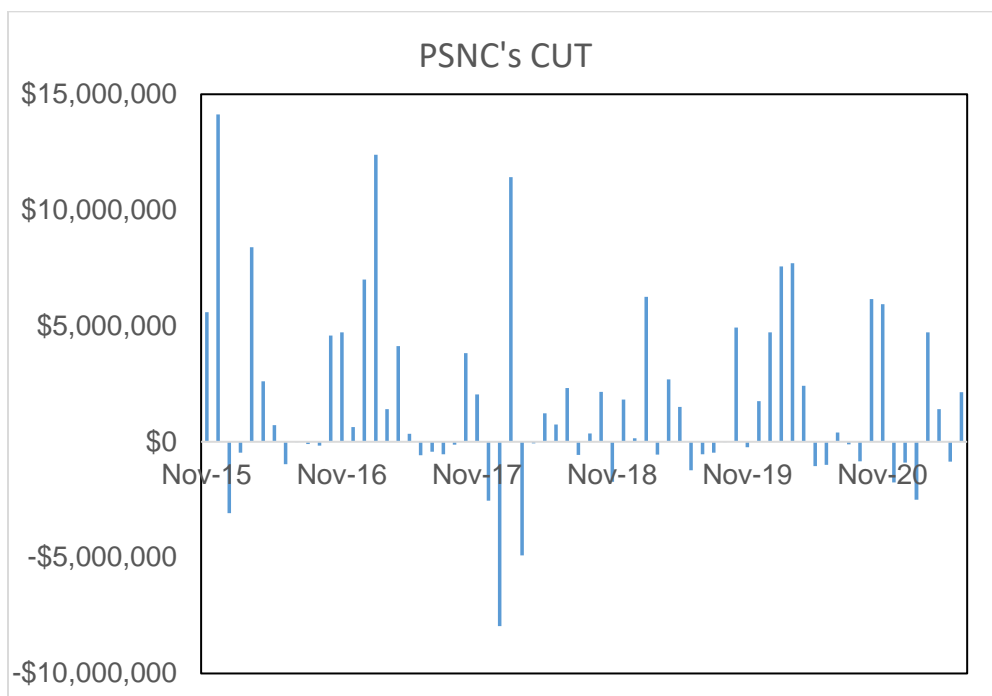
1 As noted, the IMT has alleviated some of the concerns about
 2 regulatory lag by allowing the Company to periodically increase its
 3 rate base without filing for a general rate case. Monthly financial data
 4 from the Company's G.S.-1 reveal that the annual compound growth
 5 rate of the Company's annual margins has significantly increased
 6 under the IMT. From 2016 to 2020, net margins have increased at
 7 an annual rate of 9.9% as compared to a 2.4% annual growth rate
 8 from 2012 to 2016. The graph below reflects the Company's net
 9 margin calculated by deducting the cost of gas and its O&M expense
 10 from its operating revenues.



1 In addition, I also considered the stabilizing impact on residential and
 2 small commercial customers' revenue and on the Company's
 3 earnings under the Customer Utilization Tracker (CUT) that was
 4 approved by the Commission in 2008 in Docket No. G-5, Sub 495.¹⁶
 5 In large part, the tracker was approved in light of declining customer
 6 usage and as a way to eliminate the Company's disincentive to
 7 promote conservation and better align the interests of the Company
 8 and its customers. The Commission's Order noted that the CUT
 9 protects customers from an overcollection of margin revenues to the
 10 same degree that it protects the Company from an undercollection
 11 of margin revenues. The Commission stated that the CUT would
 12 stabilize the Company's margin recovery and reduce the risk to

¹⁶ Order Approving Partial Rate Increase and Requiring Conservation Program Filing and Reporting, *In the Matter of Application of PSNC, Inc., for a General Increase in its Rates and Charges*, Docket No. G-5, Sub 495 (N.C.U.C. Oct. 28, 2008) (Sub 495 Order).

1 PSNC and its customers arising from potential variations in usage
2 patterns.¹⁷ The graph below shows the historical impact of the
3 revenue adjustments associated with the CUT. The IMT leads to less
4 regulatory lag, which lessens PSNC's financial risk, while the CUT
5 significantly reduces PSNC's business risks. For the 12 months
6 ending June 30, 2021, the CUT resulted in residential rate schedules
7 101 and 102 owing the Company an additional \$10.5 million and
8 small general service rate schedules 125,127, and 140 owing the
9 Company \$2.8 million.



¹⁷ See Sub 495 Order, Finding of Fact No. 24, at 22-23. The CUT affects rate schedules 101, 102, 125, and 127.

1 Q. TO WHAT EXTENT DOES YOUR RECOMMENDED ROE TAKE
2 INTO CONSIDERATION THE IMPACT OF CHANGING
3 ECONOMIC CONDITIONS ON PSNC'S CUSTOMERS?

4 A. I am aware of no clear numerical basis for quantifying the impact of
5 changing economic conditions on customers in determining an
6 appropriate ROE in setting rates for a public utility. Rather, the impact
7 of changing economic conditions nationwide is inherent in the
8 methods and data used in my study to determine the cost of equity
9 for utilities that are comparable to PSNC. I have reviewed certain
10 information on the economic conditions in the areas served by
11 PSNC, specifically data on the per capita personal income from the
12 Bureau of Economic Analysis (BEA) and the Development Tier
13 Designations published by the North Carolina Department of
14 Commerce for PSNC's service territory. The BEA data indicate that
15 from 2017 to 2019, per capita total personal income grew at an
16 annual growth rate of 3.5%, which is slightly lower than the 3.7%
17 growth rate for the whole state. While more current income data by
18 county is not available, the statewide total personal income grew at
19 an 18% annual growth rate as of the first quarter of 2021.¹⁸ In
20 addition, North Carolina's unemployment rate has fallen for the
21 eleventh consecutive month to 4.3%¹⁹ in August 2021.

¹⁸ BEA, Table 1, Personal Income by State and Region, 2019: Q4-2021:Q1.

¹⁹ <https://www.nccommerce.com/news/press-releases/north-carolina%E2%80%99s-august-employment-figures-released-1>

1 The North Carolina Department of Commerce annually ranks the
2 State's 100 counties based on economic well-being and assigns
3 each a Tier designation. The most distressed counties are rated a
4 "1," and the most prosperous counties are rated a "3." The rankings
5 examine several economic measures such as household income,
6 poverty rates, unemployment rates, population growth, and per
7 capita property tax base. For 2021, the average Tier ranking for North
8 Carolina counties in PSNC's service territory was 2.0, which is above
9 the statewide Tier average of 1.8.²⁰

10 As discussed previously, the Commission's duty is to set rates as low
11 as reasonably possible consistent with constitutional constraints.
12 This duty exists regardless of the customers' ability to pay. Moreover,
13 the rate of return on common equity is only one component of the
14 rates established by the Commission. General Statute § 62-133 sets
15 out an intricate formula for the Commission to follow in determining
16 a utility's overall revenue requirement. It is the combination of rate
17 base, expenses, capital structure, and cost rates for debt and equity
18 capital, that determines how much customers pay for utility service
19 and investors receive in return for their investment. The Commission
20 must exercise its best judgment in balancing the interests of both
21 groups. My analysis of the income data and the tier rankings

²⁰ NC Department of Commerce, 2021 North Carolina Development Tier Designations, November 2020.

1 indicates that economic conditions are not unduly burdensome for
2 PSNC's customers. As shown in the income and unemployment
3 data, overall economic conditions have significantly improved from
4 the height of the pandemic. While this is applicable to most of the
5 State and PSNC's customers, it is true that the economic wellbeing
6 of certain customers and related businesses will take years to
7 recover from the COVID-19 pandemic. Nonetheless, I maintain that
8 my recommended ROE will allow the Company to properly maintain
9 its facilities, provide adequate service to its customers, attract capital
10 on terms that are fair and reasonable to its customers and investors,
11 and result in rates that are just and reasonable.

12 **V. REVIEW OF NELSON TESTIMONY**

13 **Q. HAVE YOU REVIEWED COMPANY WITNESS NELSON'S**
14 **TESTIMONY?**

15 A. Yes. My review indicates that her analyses include several inputs
16 with which I take issue, and which I believe lead to a higher than
17 appropriate recommended rate of return. In particular, I disagree with
18 her exclusive use of forecasted EPS in the DCF model, her estimate
19 of the expected market return, and the market premium used in her
20 CAPM.

1 Q. WHY DO YOU DISAGREE WITH COMPANY WITNESS NELSON'S
2 EXCLUSIVE USE OF FORECASTED EPS IN HER DCF
3 ANALYSIS?

4 A. Company witness Nelson has focused entirely on five-year EPS
5 forecasted growth rates in estimating the long-term expected growth
6 rate in DPS for purposes of her DCF model. She has not given any
7 weight to either historical EPS growth rates or historical and
8 forecasted DPS and BPS growth rates. While I have given primary
9 weight to forecasted growth rates of EPS, DPS, and BPS, I have also
10 accorded some weight to actual historical performance in my
11 recommendation. Consideration of DPS and BPS, along with EPS,
12 provides a variety of indicative growth measures, as opposed to Ms.
13 Nelson's reliance on only one measure. Given that at least one study
14 has found that analysts' long-term earnings growth forecasts are no
15 more accurate at forecasting future earnings than "random walk"
16 forecasts of future earnings,²¹ and that other studies have found that
17 analyst's earnings forecasts tend to have an upward bias in their
18 projections, I find the premise that investors limit their investment
19 decisions to forecasted growth rates in EPS to be quite questionable.
20 Company witness Nelson's DCF analysis is flawed because
21 investors do not simply ignore the historical performance of stocks.

²¹ See Louis K.C. Chan, Jason Karceski, and Josef Lakonishok, "The Level and Persistence of Growth Rates," *Journal of Finance*, April 2003.

1 While forecasts are generally based, in part, on a company's
2 historical performance, it is quite a different argument to state that
3 investors rely solely on forecasts of EPS and ignore past
4 performance of dividends and book value.

5 In prior orders, this Commission has not been persuaded by rate of
6 return witnesses who relied exclusively on forecasted growth rates
7 in their use of the DCF model. In its Order in Docket No. E-22, Sub
8 532, the Commission said, "as stated in previous Commission general
9 rate case orders, [the Commission] does not approve of witness
10 Hevert's sole use of analysts' predicted earnings per share to determine
11 the DCF growth rate".²² Similarly, in its Order issued on December 30,
12 2003, in Docket No. P-100, Sub 133d, the Commission said, "The
13 Commission is persuaded that investors consider a company's
14 historical performance along with its forecasts when assessing its
15 long-run growth potential."²³ In that proceeding, BellSouth's witness
16 Billingsley gave exclusive weight to security analysts' EPS forecasts
17 compiled by Zacks Investment Research and the Institutional
18 Brokers Estimate System, which is comparable to witness Nelson's

²² *In the Matter of Application of Virginia Electric and Power Company, d/b/a Dominion Energy North Carolina for Adjustment of Rates and Charges Applicable to Electric Service in North Carolina, Order Accepting Public Staff Stipulation in Part, Accepting CIGFUR Stipulation, Deciding Contested Issues, and Granting Partial Rate Increase, (N.C.U.C. February 24, 2020) (appeal filed on other grounds) at 40.*

²³ *In the Matter of General Proceeding to Determine Permanent Pricing for Unbundled Network Elements, Order Adopting Permanent Unbundled Network Element Rates for Bellsouth Telecommunications, Inc., Docket No. P-100, Sub 133d (N.C.U.C. Dec. 30, 2003) at 73.*

1 use of earnings forecasts. This reliance on only forecasted growth is
2 incorporated into her DCF model and her CAPM's use of a market
3 risk premium that relies on results from her DCF model applied to the
4 companies in the S&P 500.

5 **Q. WHY DO YOU DISAGREE WITH COMPANY WITNESS NELSON'S**
6 **USE OF THE QUARTERLY DCF MODEL?**

7 **A.** I do not support the use of the quarterly DCF model given that it
8 reflects a cost of capital that is above the required rate of return by
9 investors. In that, this Commission has established that it is
10 unnecessary for ratepayers to provide for that added or incremental
11 return associated with the quarterly payment of dividends they
12 receive. In several previous electric and telephone cases, the
13 Commission has rejected the quarterly DCF model.²⁴

14 **Q. PLEASE EXPLAIN YOUR CONCERNS WITH COMPANY**
15 **WITNESS NELSON'S ESTIMATE OF THE EXPECTED MARKET**

²⁴ See *In the Matter of Application by Carolina Power & Light Company for Authority to Adjust and Increase Its Rates and Charges*, Order Granting Partial Increase in Rates and Charges, Docket No. E-2, Sub 537 at 187-91, (N.C.U.C. August 5, 1988), (*affirmed in part, reversed in part, and remanded for future consideration on other grounds*); *In the Matter of Application of Citizens--Telephone Company for Authority to Adjust its Rates and Charges for Intrastate Telephone Service*, Order Granting Partial Rate Increase at 662, Docket No. P-12, Sub 89 (N.C.U.C. February 26, 1991); *In the Matter of General Proceeding to Determine Permanent Pricing for Unbundled Network Elements*, Order Adopting Permanent Network Element Rates for BellSouth Telecommunications, Inc., Docket No. P-100, Sub 133d at 70-71, (N.C.U.C. December 30, 2003); *In the Matter of General Proceeding to Determine Permanent Pricing for Unbundled Network Elements*, Order on Impact of TRO on Cost of Capital and Depreciation Rate Inputs for the UNE Rates of BellSouth, Carolina, Central, and Verizon, (N.C.U.C. July 9, 2004).

1 **RISK RETURN AND MARKET PREMIUM INCORPORATED IN**
2 **HER CAPM.**

3 A. Company witness Nelson's CAPM model based on her Total Market
4 Approach assumes that investors are currently requiring expected
5 risk premiums of 12.37% and 11.62% that are based on an investor
6 expected return of 14.34% as shown on page 7 of Nelson Direct
7 Exhibit 4.

8 In my opinion, Company witness Nelson's estimate of the expected
9 returns on the S&P 500 of 14.34% using Value Line's growth rates,
10 much less the estimate of 16.35% using Bloomberg's growth rates,
11 are unrealistic for investors over the long run. These returns inflate
12 her market premium and her CAPM and ECAPM cost of equity
13 estimates. It is highly unlikely that over the long run the growth of the
14 S&P 500 would exceed the growth of the general economy. As such,
15 I maintain that Ms. Nelson's expected growth rates for the S&P 500
16 are unsustainable and not appropriate for utility ratemaking.

17 **Q. WHAT DO WELL KNOWN INVESTMENT ADVISORS BELIEVE**
18 **THE FUTURE RATES OF RETURNS WILL BE FOR THE S&P 500?**

19 A. As shown in Hinton Exhibit 11, Christine Benz of Morningstar has
20 collected forecasts of long-term rate of returns on stocks and bonds
21 by BlackRock Investment Institute, as well as investment
22 professionals John Bogle with Vanguard and J.P. Morgan. In general,

1 they expect a departure from history with lower future market returns
2 on equity of 5% to 8%. In a recent article attached as Hinton Exhibit
3 12, Veeru Perianan, Director, Multi-Asset Research, Charles Schwab
4 Investment Advisory, Inc., predicts that the annualized returns on
5 large capitalized stocks over the next ten years will be 6.6% as
6 compared to the 10.8% historical return experienced since 1970.

7 **VI. SUMMARY AND RECOMENDATIONS FOR THE COST OF CAPITAL**

8 **Q. PLEASE SUMMARIZE YOUR RECOMMENDATIONS**
9 **CONCERNING THE COST OF CAPITAL.**

10 A. Based on the results of my analysis and study, I recommend that the
11 appropriate overall cost of capital in this case be set at 6.95% as
12 shown on Hinton Exhibit 13. This recommendation is derived based
13 on a capital structure consisting of 47.71% long-term debt with a cost
14 rate of 4.45%, 1.39% short-term debt with a cost rate of 0.25%, and
15 50.90% common equity, with a recommended cost rate of 9.48%.

16 **VII. REVISIONS TO THE GAS EXTENSION FEASIBILTY MODEL**

17 **Q. PLEASE DISCUSS THE COMPANY'S MODEL USED TO**
18 **CALCULATE THE FEASIBILITY OF EXTENDING NATURAL GAS**
19 **SERVICE TO ITS RESIDENTIAL AND COMMERCIAL**
20 **CUSTOMERS.**

21 A, The Company calculates the economic feasibility of providing new
22 gas service to existing structures by estimating the costs for the

1 connection beyond the allowed 100 feet of main line and 100 feet of
2 service line offset by the cash flows generated by the expected gas
3 margins associated with the customer's expected gas usage. The
4 feasibility study follows capital budgeting practices. The model
5 involves the projection of the after tax cash flows over the next 20
6 years to derive at a net present value (NPV) and an internal rate of
7 return (IRR). If the project has a positive present value, then the
8 customer does not have to make a contribution in aid of construction
9 (CIAC); however, where the costs to connect are greater than the
10 NPV, there is a CIAC requirement. Pursuant to Commission Rule 7-
11 16 (b)(1), the Company provides 100 feet of main line and 100 feet
12 of service line to new customers with existing structures; however,
13 PSNC does not provided a similar cost allowance to new customers
14 with new housing structures, such as with a proposed new residential
15 subdivision. PSNC maintains that extending service to new
16 subdivisions may require additional capital expenditures beyond the
17 expected revenues generated that may not be representative of the
18 cost of service.

19 **Q. PLEASE ADDRESS YOUR CONCERNS WITH THE COMPANY'S**
20 **MODEL.**

21 A. My first three concerns are based on the Company's the
22 Commission's NPV Guidelines approved on August 4, 1999, in
23 Docket No. G-100, Sub 75. These Guidelines were applied to

1 projects to extend natural gas service to various unserved counties
2 such as McDowell County in Docket No. G-5, Sub 337, Alexander
3 County in Docket No. G-5, Sub 391, and Onslow County in Docket
4 G-21, Sub 330. Under the Guidelines, the appropriate investment
5 horizon is 40 years. Thus in this case, I recommend the use of 40
6 years or an appropriate length of time that matches the book lives of
7 the gas plant. Second, the Guidelines directed the use of the
8 approved net of tax discount rate employed for the NPV analysis.
9 Third, the Guidelines required that all future cash flows be adjusted
10 by a forecasted long-term inflation rate. The Company's current
11 feasibility model assumes that the margins remain static over the 20-
12 year investment horizon. As such, I recommend that the gas margins
13 associated with the customer's gas usage be adjusted for expected
14 inflation. At this time, I recommend the use of a 2.0% long-term
15 inflation rate for all gas flows that generally include gas margins and
16 operating and maintenance (O&M) expense.

17 My fourth concern is with the Company's 100-foot allowance for main
18 extensions and 100-foot allowance of service extension for new
19 customers in new structures or subdivisions. The Public Staff does
20 not believe that there is justification for discriminating between
21 existing and new housing structures. The Public Staff shares the
22 Company's concern with cost; however, in cases that involve
23 substantial additional capital, the Company could file for an

1 exception to the rule as opposed to having Company-wide policy that
2 presumes that all new customers in new subdivisions generate
3 unreasonable costs to connect even when located within the 100-
4 foot allowances.

5 **Q. WHAT IS THE BASIS FOR A 2% LONG-TERM INFLATION RATE?**

6 A. While the rate is slightly below the long-term inflation rates that have
7 been employed in recent nuclear decommissioning and electric utility
8 integrated resource planning proceedings, I believe it is a reasonable
9 rate for this application where future O&M expenses and margins are
10 inflated over the next 40 years. Furthermore, it is my understanding
11 that a similar inflation rate has been applied to O&M expenses for
12 the provision of gas service to DEC's combustion turbine in Lincoln
13 County, North Carolina and other gas expansion analyses reviewed
14 by the Public Staff.²⁵

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

16 A. Yes.

²⁵ Docket Nos. G-9, Sub 750 and G-9, Sub 720.

QUALIFICATIONS AND EXPERIENCE

JOHN ROBERT HINTON

I received a Bachelor of Science degree in Economics from the University of North Carolina at Wilmington in 1980 and a Master of Economics degree from North Carolina State University in 1983. I joined the Public Staff in May of 1985. I filed testimony on the long-range electrical forecast in Docket No. E-100, Sub 50. In 1986, 1989, and 1992, I developed the long-range forecasts of peak demand for electricity in North Carolina. I filed testimony on electricity weather normalization in Docket Nos. E-7, Sub 620, E-2, Sub 833, and E-7, Sub 989. I filed testimony on customer growth and the level of funding for nuclear decommissioning costs in Docket No. E-2, Sub 1023, Docket No. E-2, Sub 1219, and similar proceedings on the level of funding for nuclear decommissioning costs in Docket Nos. E-7, Sub 1026, and E-7, Sub 1146. I have filed testimony on the Integrated Resource Plans (IRPs) filed in Docket No. E-100, Subs 114 and 125, and I have reviewed numerous peak demand and energy sales forecasts and resource expansion plans filed in electric utilities' IRPs

I have been the lead analyst for the Public Staff in numerous avoided cost proceedings, filing testimony in Docket No. E-100, Subs 106, 136, 140, 148, and 158. I have filed a Statement of Position in the arbitration case

involving EPCOR and Progress Energy Carolinas in Docket No. E-2, Sub 966.

I have filed testimony on the issuance of certificates of public convenience and necessity (CPCN) in Docket Nos. E-2, Sub 669, SP-132, Sub 0, E-7, Sub 790, E-7, Sub 791, and E-7, Sub 1134.

I have filed testimony on the issue of fair rate of return for electric utilities in Docket Nos. E-22, Sub 333; E-22, Sub 412; and E-22, Sub 532. I have filed testimony on credit metrics and the risk of a downgrade in Docket No. E-7, Sub 1146. I have filed testimony on the rate of return for telephone utilities in P-26, Sub 93; P-12, Sub 89; P-31, Sub 125; P-100, Sub 133b; and P-100, Sub 133d (1997 and 2002); the rate of return for natural gas utilities in G-21, Sub 293; G-21, Sub 442; G-5, Sub 327; G-5, Sub 386; G-9, Sub 351; G-9, Sub 743; G-9, Sub 781; and the rate of return for water utilities in W-778, Sub 31; W-218, Sub 319; W-218, Sub 497; W-218, Sub 526; W-354, Sub 360, W-354, Sub 364, and in several smaller water utility rate cases.

I have filed testimony on the hedging of natural gas prices in Docket No. E-2, Subs 1001 and 1018. I have filed testimony on the expansion of natural gas in Docket No. G-5, Subs 337 and 372. I performed the financial analysis in the two audit reports on Mid-South Water Systems, Inc., Docket No. W-100, Sub 21. I testified in the application to transfer of the CPCN from North Topsail Water and Sewer, Inc. to Utilities, Inc., in Docket No. W-1000,

Sub 5. I have filed testimony on weather normalization of water sales in Docket No. W-274, Sub 160.

With regard to the 1996 Safe Drinking Water Act, I was a member of the Small Systems Working Group that reported to the National Drinking Water Advisory Council of the U.S. Environmental Protection Agency. I have published an article in the National Regulatory Research Institute's Quarterly Bulletin entitled Evaluating Water Utility Financial Capacity.

RISK MEASURES

SAFETY RANK¹

Value Line's Safety Rank is a measure of the total risk of a stock. It includes factors unique to the company's business such as its financial condition, management competence, etc. The Safety Rank is derived by averaging two variables: the stock's Price Stability Index, and the Financial Strength Rating of the company. The Safety Rank ranges from 1 (Highest) to 5 (Lowest).

BETA¹ (β)

The Value Line Beta is derived from a regression analysis between weekly percent changes in the price of a stock and weekly percent price changes in the New York Stock Exchange Composite Index over a period of five years.

There has been a tendency over the years for high Beta stocks to become lower and for low Beta stocks to become higher. This tendency can be measured by studying Betas of stocks in five consecutive intervals. The Betas published in the Value Line Investment Survey are adjusted for this tendency and hence are likely to be better predictors of future Betas than those based exclusively on the experience of the past five years.

The New York Stock Exchange Composite Index is used as the basis for calculating the Beta because this index is a good proxy for the complete equity portfolio. Since Beta's significance derives primarily from its usefulness in portfolios rather than individual stocks, it is best constructed by relating to an overall market portfolio. The Value Line Index, because it weights all stocks equally, would not serve as well.

The security's return is regressed against the return on the New York Stock Exchange Composite Index over the past five years, so that 259 observations of weekly price changes are used. Value Line adjusts its estimate of Beta (β_i) for regression described by Blume (1971). The estimated Beta is adjusted as follows:

$$\text{Adjusted } \beta_i = 0.35 + 0.67\beta$$

FINANCIAL STRENGTH RATING¹

Value Line's Financial Strength Ratings are primarily a measure of the relative financial strength of a company. The rating considers key variables such as coverage of debt, variability of return, stock price stability, and company size. The Financial Strength Ratings range from the highest at A++ to the lowest at C.

PRICE STABILITY INDEX¹

Value Line's Price Stability Index is based upon a ranking of the standard deviation of weekly percent changes in the price of a stock over the last five years. The top 5% carry a Price Stability Index of 100; the next 5%, 95; and so on down to an Index of 5.

EARNINGS PREDICTABILITY INDEX¹

Value Line's Earnings Predictability Index is a measure of the reliability of an earnings forecast. The most reliable forecasts tend to be those with the highest rating (100); the least reliable (5).

S&P BETA² (β)

The S&P Beta is derived from a regression analysis between 60 months of price changes in a company's stock price (plus corresponding dividend yield) and the monthly price changes in the S&P 500 Index (plus corresponding dividend yield). Prices and dividends are adjusted for all subsequent stock splits and stock dividends.

S&P BOND RATING²

The S&P Bond Ratings is an appraisal of the credit quality based on relevant risk factors. S&P reviews both the company's financial and business profiles. Shown below are the ratings:

- AAA An extremely strong capacity to pay interest and repay principal.
- AA+ A very strong capacity to pay interest and repay principal.
- AA There is only a small degree of difference between "AAA" and "AA"
- AA- Debt issues.
- A+ A strong capacity to pay interest and repay principal.

These A ratings indicate the obligor is more susceptible to changes in economic conditions than AAA" or "AA" debt issues.

BBB+ An adequate capacity to pay interest and repay principal.
BBB Economic conditions or changing circumstances are more likely to lead to a weakened capacity to pay interest and repay principal.
BB+ “BB” indicates less near-term vulnerability to default than other BB speculative issues.

However, these bonds face major ongoing BB uncertainties or exposure to adverse conditions that could lead to inadequate capacity to meet timely interest and principal payments.

S&P STOCK RANKING²

The S&P Stock Rankings is an appraisal of the growth and stability of the company’s earnings and dividends over the past 10 years. The final score for each stock is measured against a scoring matrix determined by an analysis of the scores of a large and representative sample of stocks. Shown below are the rankings:

A+	Highest
A	High
A-	Above average
B+	Average
B	Below Average
B-	Lower
C	Lowest
D	In Reorganization
NR	Not rated

Moody's Bond Rating³

Moody's Bond Ratings is an appraisal of the credit quality based on relevant risk factors. Shown below are the ratings:

Aaa Obligations judged to be the highest quality and are subject to the very lowest level of credit risk

Aa Obligations judged to be the high quality and are subject to low level credit risk

A Obligations judged to be the upper medium grade and are subject to low credit risk

Baa Obligations judged to be the medium grade and are subject to moderate credit risk and may possess certain speculative characteristics

Ba Obligations judged to be speculative and subject to substantial credit risk

B Obligations are considered speculative and subject to high credit risk.

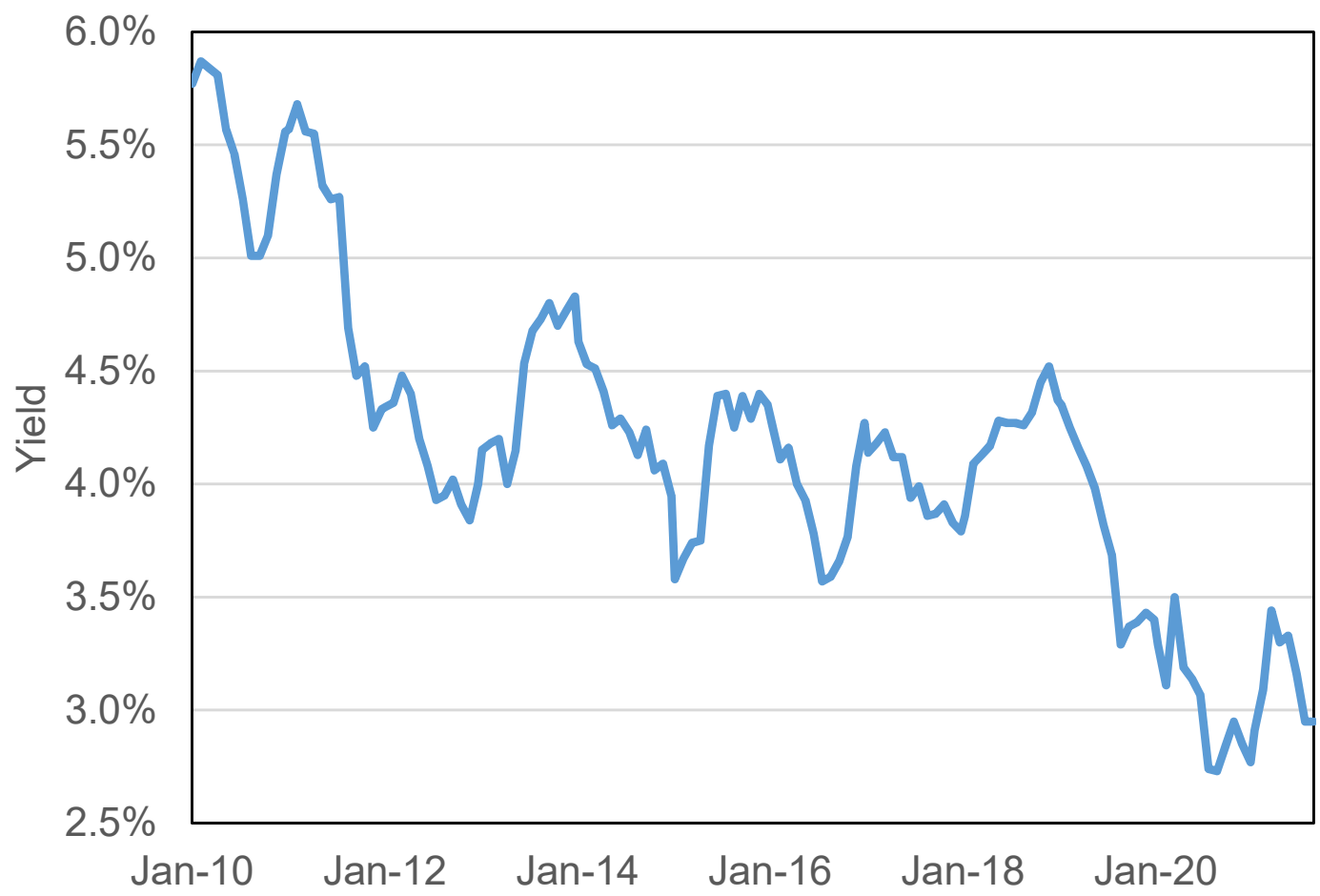
Sources:

¹ Value Line Investment Analyzer, Version 3.7.0.15, New York, NY.

² S&P Net Advantage and S&P Global Market Intelligence, July, 2019

³ Moody's Investor Service, Rating Symbols and Definitions, February, 2019

Moody's A-Rated Utility Bond Yields



Hinton Exhibit 1
Public Staff

THE WALL STREET JOURNAL.

Economists Got the Decade All Wrong. They're Trying to Figure Out Why.

The U.S. has enjoyed its longest economic expansion on record without triggering inflation as interest rates remain historically low

by Greg Ip

Dec. 14, 2019 1:00 pm ET



In the fall of 2009, the global financial crisis had only just ended, and interest rates were a mere 0.1%. Peering ahead, economists assumed the recovery would resemble previous recoveries, though a tad slower, and thus rates would start rising the next year and plateau at 4.2% by 2015.

But by the fall of 2010, rates hadn't budged. Like Charlie Brown taking another run at the football, economists gamely made the same forecast that year, and the year after that and the year after that. Rates remained stuck near zero until 2015, a stretch of free money unseen since the 1940s.

When rates started to rise, they didn't come close to levels once considered normal, ending the decade between 1.5% and 1.75%. Private-sector economists now expect them to average 2.4% over the long term, according to Blue Chip Economic Indicators. Judging by the bond market, they might have guessed high again: Ten-year Treasury note yields are just 1.8%—roughly zero, adjusted for inflation.

How could economists have gotten something so basic so spectacularly wrong? What was it about this past decade that made all their predictions go awry?



Fed Chairman Jerome Powell and former chairmen Janet Yellen and Ben Bernanke. The financial crisis was followed by a stretch of free money

Economists have been casting around for the answer, a theory to explain their inability to peer accurately into the months ahead, let alone the years. Such a theory must do more than say “The Federal Reserve did it.” It must explain why growth was the most subdued of any expansion since the 1940s and inflation consistently ran below the Fed’s 2% target, the reasons the Fed kept rates so low.

And, no less difficult, it would have to explain why, in spite of that subdued growth, the U.S. has enjoyed its longest economic expansion on record, one marked by a record-breaking bull market in stocks and unemployment falling to a 50-year low.

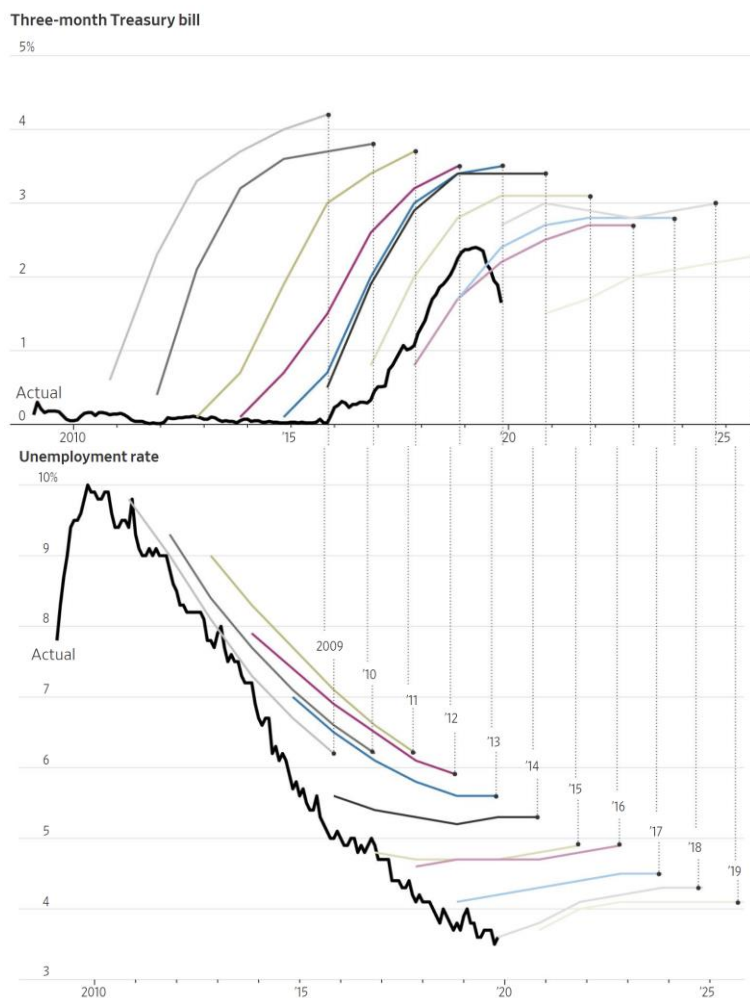
One explanation is the “debt hangover” theory popularized by Carmen Reinhart and Kenneth Rogoff, whose history of financial crises, “This Time Is Different: Eight Centuries of Financial Folly,” was a sleeper hit in 2009. They found that in the wake of financial crises, households, banks, businesses and sometimes governments are fixated on paying down debts and wary that another crisis is around the corner, so they avoid borrowing and investing. This holds down growth, inflation and interest rates.

The U.S. initially tracked this model. It had barely exited its own crisis when another erupted in the eurozone, pushing Greece into default and others to the brink of it.

But as those crises faded from view, low growth, inflation and rates persisted.

A Confounding Decade

Since 2009 economists’ projections of interest rates and unemployment (shown with year made) have consistently proved too high.



Sources: Blue Chip Economic Indicators (forecasts); Federal Reserve Bank of St. Louis (actual T-bill, unemployment rates)

So in 2013 Larry Summers, a former top adviser to Presidents Bill Clinton and Barack Obama and now an economist at Harvard University, advanced an alternative explanation: [“secular stagnation.”](#) He borrowed the phrase from an earlier Harvard economist, Alvin Hansen who used it in 1938 to describe the Great Depression’s persistently weak growth and high unemployment. Mr. Hansen tied it to weak investment due to slow population growth: Businesses had less need to invest when there were fewer new workers and customers and when aging households bought fewer big-ticket products like houses.

Slow population growth is once again weighing on growth and interest rates, Mr. Summers noted, and he added several other factors: the fastest-growing businesses, such as social-media platforms, invest little of their rich profits. Higher inequality meant more income flows to the high-saving, low-spending rich.

Though initially skeptical of Mr. Summers’s thesis, many economists have since warmed to it, at least for other parts of the world, if not the U.S. In some countries like Germany a persistent

excess of savings manifests itself as a trade surplus which flows into other countries' bonds, holding down interest rates around the world.

Secular stagnation has several profound implications. First, with interest rates closer to zero, central banks are less able to combat future recessions. Second, a structural shortage of private borrowing means governments can run big deficits without pushing up interest rates. Indeed, given central banks' lack of ammunition, governments should run deficits, or the economy will stagnate. Reducing entitlements such as future Social Security benefits in the name of fiscal prudence may worsen the problem by encouraging households to save more.

Secular stagnation also increases the risk of protectionism. Any country with too little domestic demand to achieve full employment and 2% inflation will be tempted to foist the problem on its neighbors by cheapening its currency or erecting tariffs so as to export more and import less.

Yet in key respects the past decade doesn't conform to the gloomy prognosis of secular stagnation: The stock market has romped to one record after another, and job growth has remained consistently strong.

As with interest rates, economists have been surprised by unemployment, which peaked at almost 10% in 2010. Year after year, they expected it to bottom out around 5%. It's now down to 3.5%, a 50-year low, and likely headed lower.

The expansion is now the longest since records begin in the mid-1800s. It bears little resemblance to the 1930s, which Mr. Hansen described as "sick recoveries which die in their infancy and...leave a hard and seemingly immovable core of unemployment."



Job seekers and recruiters at a fair in Los Angeles. Economists have been surprised by the continued decline of unemployment.

This points to a third possible theory. The so-called natural rate of unemployment, the lowest the U.S. can sustain without running out of workers or pushing up inflation (called u^* or "u-star" in economists' equations) is much lower than previously thought. So the recovery has had more ground to cover than many realized, and as a result the economy has spent much of the past decade operating well below capacity.

Jan Hatzius, chief economist at Goldman Sachs, says there isn't a lot of mystery about the behavior of inflation and interest rates: "We fell into a deep hole so we had a lot of spare capacity, and it took a long time to climb out."

The U.S. may have finally climbed out, but until Europe has as well, interest rates may remain low, he says. “How secular is it? How cyclical? Until you’ve seen economies really normalize from a cyclical perspective it’s going to be hard to fully distinguish between those two things.”

In other words, it might take the next decade to answer what really happened in the last.

Mr. Ip is The Wall Street Journal’s chief economics commentator, in Washington. He can be reached at greg.ip@wsj.com.



CREDIT OPINION

31 January 2020

Update

Rate this Research

RATINGS

Public Service Co. of North Carolina, Inc.

Domicile	Gastonia, North Carolina, United States
Long Term Rating	Baa1
Type	Senior Unsecured - Dom Curr
Outlook	Stable

Please see the [ratings section](#) at the end of this report for more information. The ratings and outlook shown reflect information as of the publication date.

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Public Service Co. of North Carolina, Inc.

Update following downgrade to Baa1

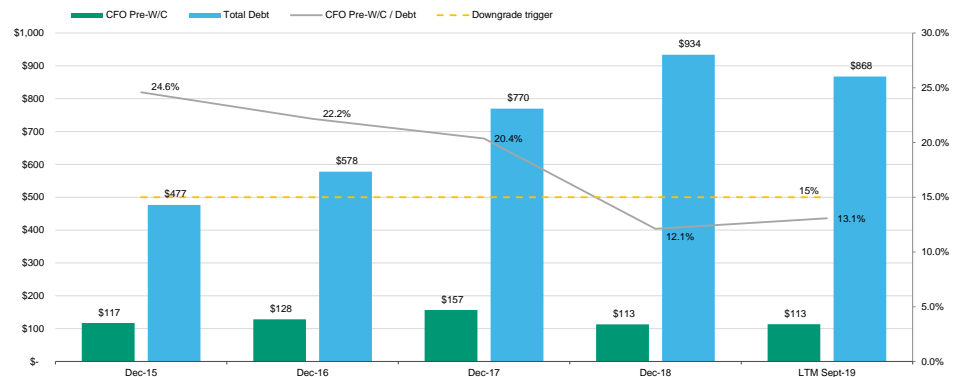
Summary

Public Service Company of North Carolina's (PSNC) credit is supported by 1) its low-risk operations as a local gas distribution company (LDC), 2) a generally supportive regulatory environment that provides allowed returns and cost recovery mechanisms in-line with industry norms and 3) the Customer Usage Tracker (CUT) and Infrastructure Modernization Tracker (IMT) that enhance the predictability and stability of cash flow.

PSNC's credit is constrained by the likelihood that weakened financial metrics will remain lower for longer due to 1) increased leverage that has helped fund the utility's capital program, 2) a base rate freeze through November 2021, and 3) the negative cash flow impacts of federal tax reform, once new rates are set in place for 2022.

Exhibit 1

Historical CFO Pre-WC, Total Debt and CFO Pre-WC to Debt (\$ MM)



Source: Moody's Financial Metrics

Credit strengths

- » Low business risk operations in a supportive regulatory environment
- » Supportive parent with robust financial resources
- » Economic health of service territory

Credit challenges

- » Elevated capital program to provide for growth and distribution system integrity
- » Cash flow headwinds due to rate freeze and eventually customer credits for tax reform

Public Staff

**Hinton Exhibit 3
Page 2 of 17**

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Sep 23 2021

Rating outlook

PSNC's stable outlook reflects expectations that CFO pre-WC to debt ratios will remain between 14-17% over the next 2-3 years, while still receiving supportive treatment from the North Carolina Utilities Commission (NCUC).

Factors that could lead to an upgrade

- » Improved regulatory support for cost recovery (e.g., use of forward test years in rate making)
- » CFO pre-WC to debt at 19% on a sustainable basis

Factors that could lead to a downgrade

- » If the North Carolina regulatory environment were to become less credit supportive
- » CFO pre-WC to debt metrics consistently below 15%

Key indicators

Exhibit 2

Public Service Co. of North Carolina, Inc.

	Dec-15	Dec-16	Dec-17	Dec-18	LTM Sept-19
CFO Pre-W/C + Interest / Interest	6.1x	5.8x	5.8x	3.7x	3.5x
CFO Pre-W/C / Debt	24.6%	22.2%	20.4%	12.1%	13.1%
CFO Pre-W/C – Dividends / Debt	17.7%	16.3%	15.7%	7.4%	10.3%
Debt / Capitalization	32.3%	35.1%	44.0%	47.2%	42.9%

All ratios are based on 'Adjusted' financial data and incorporate Moody's Global Standard Adjustments for Non-Financial Corporations. Financial Metrics™
Source: Moody's Financial Metrics

Profile

Public Service Company of North Carolina (PSNC, Baa1 stable), a wholly owned subsidiary of intermediate holding company SCANA Corporation (SCANA, Baa3 stable), which on January 1, 2019 merged with Dominion Energy, Inc. (Dominion, Baa2 stable), is fully regulated by the North Carolina Utilities Commission (NCUC). PSNC is a local gas distribution utility (LDC) serving approximately 580,000 residential, commercial and industrial customers with a service area of about 12,000 square miles in the state of North Carolina.

Detailed credit considerations

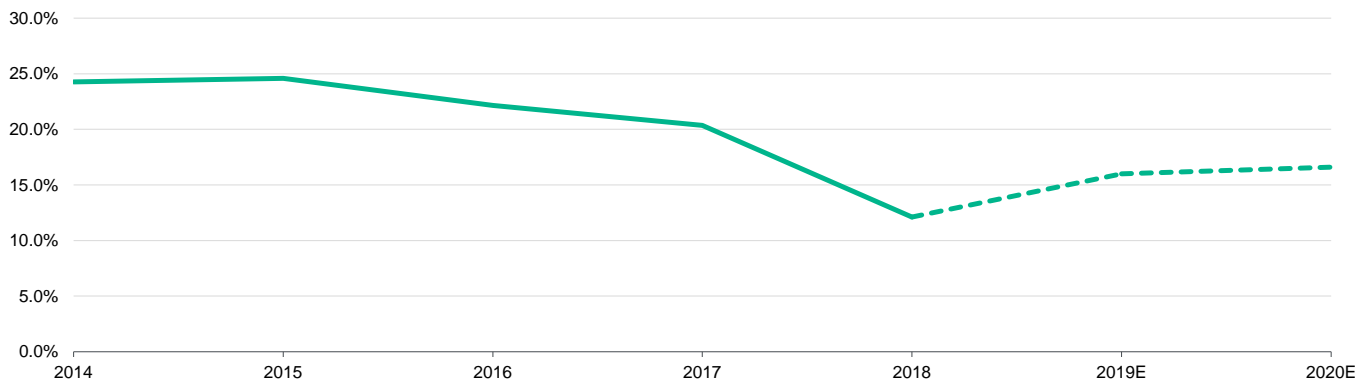
Financial profile hurt by rate freeze and will remain lower than historical norms due to tax reform

In November 2018 the NCUC approved the proposed merger of PSNC's parent company SCANA with Dominion. As a condition to the approval order, PSNC agreed to a base rate freeze through November 2021 and to provide customer bill credits of \$1.3 million in each of January 2019, 2020 and 2021. As a result, the company's key financial metrics, such as CFO pre-WC to debt, have declined materially over the past 3 years, as seen in the exhibit below.

This publication does not announce a credit rating action. For any credit ratings referenced in this publication, please see the ratings tab on the issuer/entity page on www.moody's.com for the most updated credit rating action information and rating history.

Exhibit 3

The future ratio of CFO Pre-WC to Debt is likely to remain lower than historical averages



Source: Moody's Financial Metrics and Estimates

PSNC's financial profile should improve materially once it is able to implement new rates to recover investments and higher operating costs through a general rate case. We expect the company to file some time in 2021, with new rates effective in November 2021. However, the revenue increase associated with the investment recovery will be tempered by cash flow reductions that are commensurate with the December 2017 Tax Cuts and Jobs Act (i.e., loss of bonus depreciation for utilities, federal tax rate reduction to 21%, from 35% and the cash return of excess deferred income taxes over a period of time). This will likely keep CFO pre-WC to debt below 18%, even when assuming a supportive general rate case outcome.

Low business risk in a generally supportive regulatory environment

PSNC's credit profile reflects a supportive regulatory environment in North Carolina. PSNC's gas distribution operations are characterized as low business risk due to its regulated nature, asset base has no cast iron or bare steel piping, and mostly residential customer base.

PSNC benefits from a suite of cost recovery mechanisms, including Rider D – for recovery of all prudently incurred gas costs including realized and unrealized gains and losses from its hedging activities, and a customer usage tracker (CUT) (decoupling) that allows PSNC to periodically adjust rates for residential and commercial customers based on average per customer consumption.

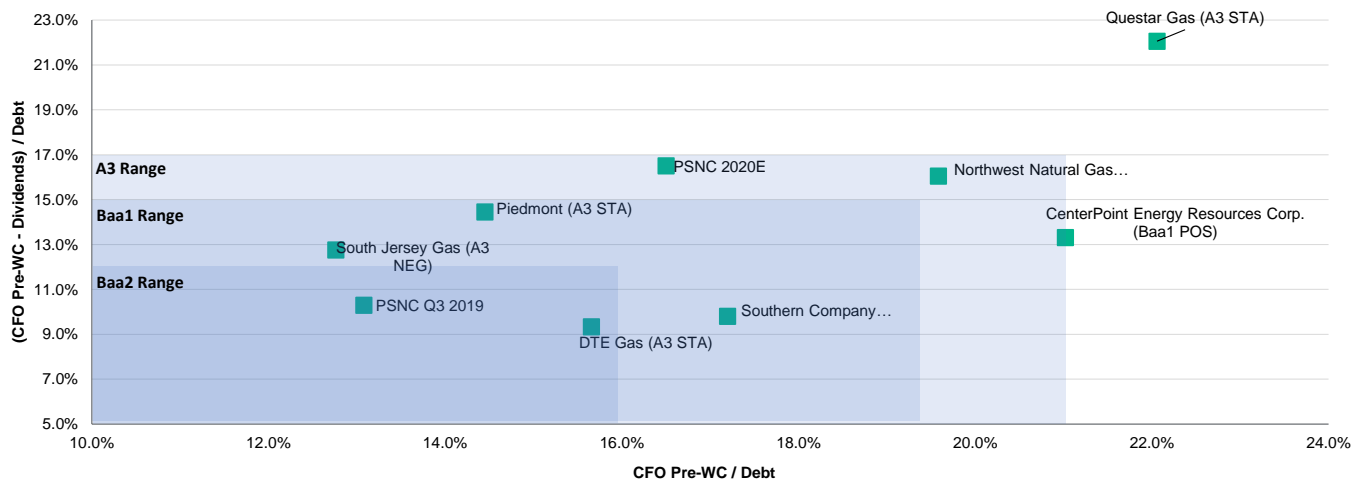
Another particularly helpful mechanism is the IMT to track and provide ongoing recovery of capital expenses relating to its transmission and pipeline integrity programs, along with regulatory accounting treatment for related operations and maintenance expenses. We view the use of trackers and riders as supportive of credit quality as they provide some assurance of recovery and significantly reduce regulatory lag, particularly when capital investment is growing. We note however, that while PSNC is able to recover its capital expenditures for pipeline integrity via rider, its increased operating and maintenance costs are subject to deferral and regulatory lag, which is negatively impacting cash flow.

Stronger parent company helps to support credit quality, but PSNC's financials are still positioned in-line with Baa1 peers

The January 2019 acquisition by Dominion resulted in an immediate improvement in the ownership profile of PSNC, since it provided some relief to the contagion risk of SCANA's declining credit profile. Furthermore, Dominion infused roughly \$70 million of equity into PSNC during 2019 and, given PSNC's high capex levels, we expect PSNC to retain more cash than normal over the next 12-18 months. These benefits reflect the vast financial resources of a stronger parent, with diversified operations across multiple business lines and with utility services in 8 states.

Despite these benefits, PSNC's credit profile has declined due to its overall financial profile, which positions it well with Baa1 peer LDCs, as seen in the exhibit below.

Exhibit 4
 PSNC's financials are positioned weakly versus select A3 and Baa1 LDC Peers



Source: Moody's Financial Metrics and Estimates

Continued growth in service territory

According to Moody's Economy.com, North Carolina's economy is currently in mid-expansion. Year over year job growth is the fastest since late 2016 and exceeds the South and national averages. Much of PSNC's service territory is concentrated in the Raleigh – Durham region which is situated in North Carolina's "research triangle", viewed as a technology powerhouse that is bolstering North Carolina's expansion. Going forward, North Carolina's growth is expected to remain above average, fueled by tech-related investment and strong demographic trends.

ESG considerations

Liquidity analysis

PSNC depends upon its parent in order to maintain adequate liquidity. On a standalone basis, PSNC will continue to produce substantial free cash flow deficits, as its 2020 capex of nearly \$300 million continues to outpace cash flow from operations, which we expect to be around \$150 million for the year.

When acquired by Dominion, PSNC canceled its \$200 million long-term, syndicated, revolving line of credit and commercial paper program, a credit negative; however, Dominion replaced it with a \$400 million inter-company credit agreement, with outstanding amounts reflected in its "accounts payable-affiliated companies" on PSNC's balance sheet. At September 2019, PSNC had borrowings outstanding of \$113 million under this agreement.

PSNC's next long term debt maturity is \$100 million of first mortgage bonds due in March of 2020.

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Rating methodology and scorecard factors

Exhibit 5

Rating Factors

Public Service Co. of North Carolina, Inc.

Regulated Electric and Gas Utilities Industry Scorecard [1][2]	Current LTM 9/30/2019		Moody's 12-18 Month Forward View As of Date Published [3]	
	Measure	Score	Measure	Score
Factor 1 : Regulatory Framework (25%)				
a) Legislative and Judicial Underpinnings of the Regulatory Framework	A	A	A	A
b) Consistency and Predictability of Regulation	Aa	Aa	Aa	Aa
Factor 2 : Ability to Recover Costs and Earn Returns (25%)				
a) Timeliness of Recovery of Operating and Capital Costs	A	A	A	A
b) Sufficiency of Rates and Returns	Baa	Baa	Baa	Baa
Factor 3 : Diversification (10%)				
a) Market Position	Ba	Ba	Ba	Ba
b) Generation and Fuel Diversity	N/A	N/A	N/A	N/A
Factor 4 : Financial Strength (40%) [4]				
a) CFO pre-WC + Interest / Interest (3 Year Avg)	4.4x	Baa	4.5x - 5x	A
b) CFO pre-WC / Debt (3 Year Avg)	16.0%	Baa	15% - 17%	Baa
c) CFO pre-WC – Dividends / Debt (3 Year Avg)	11.9%	Baa	12% - 15%	Baa
d) Debt / Capitalization (3 Year Avg)	43.0%	A	40% - 45%	A
Rating:				
Scorecard-Indicated Outcome Before Notching Adjustment		A3		A3
HoldCo Structural Subordination Notching		0		0
a) Scorecard-Indicated Outcome		A3		A3
b) Actual Rating Assigned		Baa1		Baa1

[1] All ratios are based on 'Adjusted' financial data and incorporate Moody's Global Standard Adjustments for Non-Financial Corporations.

[2] As of 9/30/2019(L)

[3] This represents Moody's forward view; not the view of the issuer; and unless noted in the text, does not incorporate significant acquisitions and divestitures.

[4] Low business risk for financial strength

Source: Moody's Financial Metrics

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Appendix

Exhibit 6

Cash Flow and Credit Metrics

CF Metrics	Dec-15	Dec-16	Dec-17	Dec-18	LTM Sept-19
As Adjusted					
FFO	126	152	171	128	130
+/- Other	(9)	(24)	(14)	(15)	(17)
CFO Pre-WC	117	128	157	113	113
+/- ΔWC	7	(15)	(53)	(21)	(7)
CFO	124	113	103	92	106
- Div	33	34	36	44	24
- Capex	133	171	276	244	175
FCF	(41)	(92)	(208)	(196)	(93)
(CFO Pre-W/C) / Debt	24.6%	22.2%	20.4%	12.1%	13.1%
(CFO Pre-W/C - Dividends) / Debt	17.7%	16.3%	15.7%	7.4%	10.3%
FFO / Debt	26.5%	26.4%	22.2%	13.7%	15.0%
RCF / Debt	19.6%	20.5%	17.5%	9.0%	12.2%
Revenue	439	423	470	500	546
Cost of Good Sold	191	163	187	210	234
Interest Expense	23	27	33	42	45
Net Income	50	56	70	84	83
Total Assets	1,843	2,048	2,357	2,569	2,658
Total Liabilities	1,091	1,272	1,552	1,712	1,694
Total Equity	752	775	806	857	964

All figures and ratios are calculated using Moody's estimates and standard adjustments. Periods are Financial Year-End unless indicated. LTM = Last Twelve Months
Source: Moody's Financial Metrics

Exhibit 7

Peer Comparison Table

(in US millions)	Public Service Co. of North Carolina, Inc.			Piedmont Natural Gas Company, Inc.			DTE Gas Company			Spire Alabama Inc.		
	Baa1 Stable			A3 Stable			A3 Stable			A2 Stable		
	FYE Dec-17	FYE Dec-18	LTM Sept-19	FYE Dec-17	FYE Dec-18	LTM Sept-19	FYE Dec-17	FYE Dec-18	LTM Sept-19	FYE Sep-17	FYE Sep-18	LTM Sept-19
Revenue	470	500	546	1,328	1,375	1,391	1,368	1,415	1,488	401	501	466
CFO Pre-W/C	157	113	113	469	285	389	310	337	295	137	137	176
Total Debt	770	934	868	2,456	2,395	2,689	1,784	1,826	1,884	489	521	624
CFO Pre-W/C / Debt	20.4%	12.1%	13.1%	19.1%	11.9%	14.4%	17.4%	18.5%	15.7%	28.0%	26.3%	28.3%
CFO Pre-W/C – Dividends / Debt	15.7%	7.4%	10.3%	19.1%	11.9%	14.4%	11.5%	12.3%	9.3%	22.5%	20.5%	25.2%
Debt / Capitalization	44.0%	47.2%	42.9%	52.7%	47.8%	47.5%	46.4%	43.9%	43.0%	36.1%	39.3%	43.0%

All figures & ratios calculated using Moody's estimates & standard adjustments. FYE = Financial Year-End. LTM = Last Twelve Months.
Source: Moody's Financial Metrics

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Ratings

Exhibit 8

Category	Moody's Rating
PUBLIC SERVICE CO. OF NORTH CAROLINA, INC.	
Outlook	Stable
Senior Unsecured	Baa1
ULT PARENT: DOMINION ENERGY, INC.	
Outlook	Stable
Senior Unsecured	Baa2
Jr Subordinate	Baa3
Pref. Stock	Ba1
Commercial Paper	P-2
PARENT: SCANA CORPORATION	
Outlook	Stable
Issuer Rating	Baa3
Senior Unsecured	Baa3

Source: Moody's Investors Service

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CREDIT OPINION

8 February 2021

Update

✓ Rate this Research

RATINGS

Public Service Co. of North Carolina, Inc.

Domicile	Gastonia, North Carolina, United States
Long Term Rating	Baa1
Type	Senior Unsecured - Dom Curr
Outlook	Stable

Please see the [ratings section](#) at the end of this report for more information. The ratings and outlook shown reflect information as of the publication date.

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Public Service Co. of North Carolina, Inc.

Update to credit analysis

Summary

Public Service Company of North Carolina's (PSNC) credit is supported by 1) its low risk operations as a local gas distribution company (LDC), 2) a generally supportive regulatory environment that provides allowed returns and cost recovery mechanisms in line with industry norms and 3) a Customer Usage Tracker (CUT) and Infrastructure Modernization Tracker (IMT) that enhance the predictability and stability of cash flow amid PSNC's current rate freeze.

PSNC's credit is constrained by the likelihood that weakened financial metrics will remain lower for longer due to 1) increased leverage that has helped fund the utility's capital program, 2) a base rate freeze through November 2021, and 3) the negative cash flow impacts of federal tax reform, once new rates are set in place, which we expect to occur in 2022.

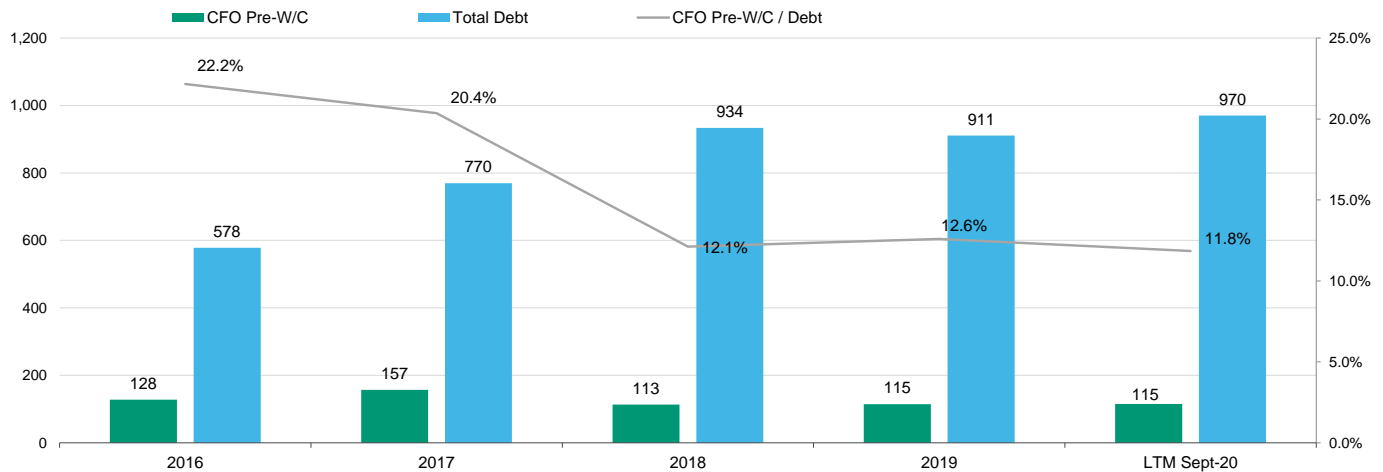
COVID-19 considerations

The rapid spread of the coronavirus outbreak, severe global economic shock, low oil prices, and asset price volatility are creating a severe and extensive credit shock across many sectors, regions and markets. The combined credit effects of these developments are unprecedented. We regard the coronavirus outbreak as a social risk under our ESG framework, given the substantial implications for public health and safety.

We expect PSNC to be relatively resilient to recessionary pressures because of its rate regulated operations and cost recovery mechanisms, such as the CUT and IMT and a strong underlying economy in Raleigh, even amid COVID-19 pressures.

Nevertheless, we are watching for natural gas volume declines, utility bill payment delinquency, and the regulatory response to counter these effects on earnings and cash flow. As events related to the coronavirus continue, we are taking into consideration a wider range of potential outcomes, including more severe downside scenarios. The effects of the pandemic could result in financial metrics that are weaker than expected; however, we see these issues as temporary and not reflective of the long-term financial profile or credit quality of PSNC.

Exhibit 1
 Historical CFO Pre-WC, Total Debt and CFO Pre-WC to Debt (\$ MM)



The downgrade threshold indicated is one of several factors that could lead to a downgrade if the metric is consistently below that level.
 Source: Moody's Financial Metrics

Credit strengths

- » Low business risk operations in a supportive regulatory environment
- » Revenue decoupling mechanism and infrastructure rider provide solid operating and capital cost recovery despite COVID-19 economic impacts
- » Supportive parent with robust financial resources

Credit challenges

- » Weak credit metrics for the last three years
- » Elevated capital program to provide for growth and distribution system integrity
- » Cash flow headwinds due to rate freeze and eventual customer credits for tax reform

Rating outlook

PSNC's stable outlook reflects our expectation that its CFO pre-WC to debt ratio will improve to 15-17% beginning in 2022, following a general rate case filing and what we expect to be supportive regulatory treatment from the North Carolina Utilities Commission (NCUC).

Factors that could lead to an upgrade

- » Improved regulatory support for cost recovery (e.g., the use of forward test years in rate making)
- » CFO pre-WC to debt above 18% on a sustainable basis

Factors that could lead to a downgrade

- » If the North Carolina regulatory environment were to become less credit supportive of timely cost and investment recovery
- » CFO pre-WC to debt metric remains below 15%

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Key indicators

Exhibit 2

Public Service Co. of North Carolina, Inc.

	Dec-16	Dec-17	Dec-18	Dec-19	LTM Sept-20
CFO Pre-W/C + Interest / Interest	6.0x	5.8x	3.7x	3.6x	3.7x
CFO Pre-W/C / Debt	22.2%	20.4%	12.1%	12.6%	11.8%
CFO Pre-W/C – Dividends / Debt	16.3%	15.7%	7.4%	11.2%	11.8%
Debt / Capitalization	35.1%	44.0%	47.2%	43.1%	43.4%

All ratios are based on 'Adjusted' financial data and incorporate Moody's Global Standard Adjustments for Non-Financial Corporations.

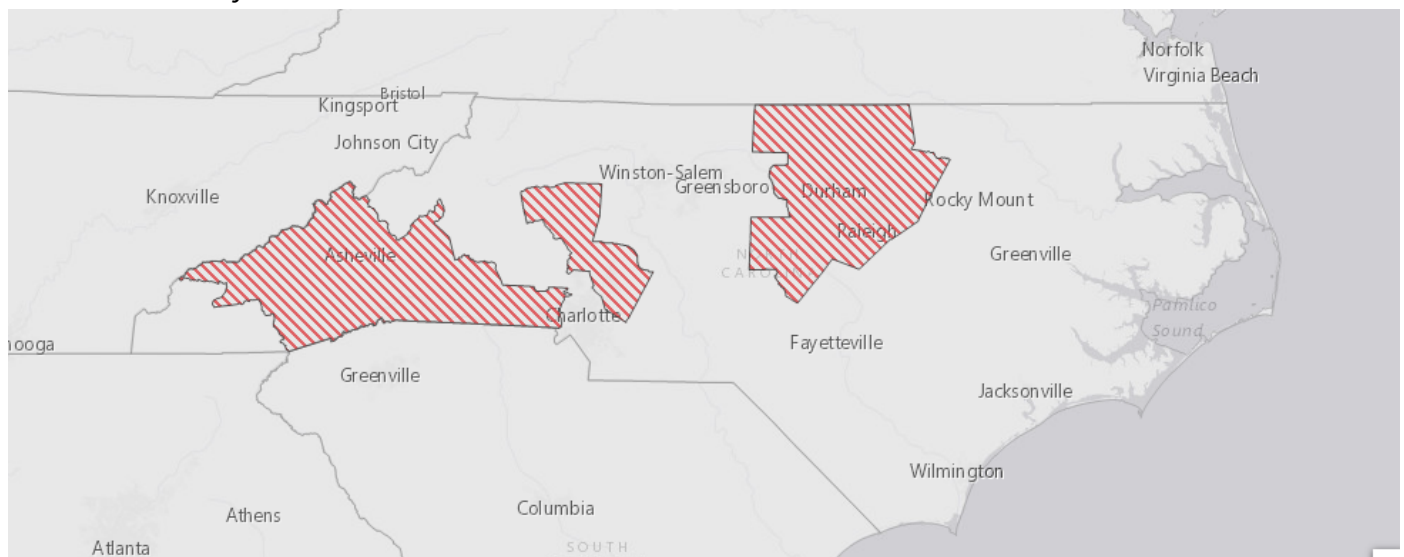
Source: Moody's Financial Metrics

Profile

Public Service Company of North Carolina (PSNC, Baa1 stable), a wholly owned subsidiary of intermediate holding company SCANA Corporation, and ultimate parent company, Dominion Energy, Inc. (Dominion, Baa2 stable), is fully regulated by the North Carolina Utilities Commission (NCUC). PSNC is a local gas distribution utility (LDC) serving approximately 580,000 residential, commercial and industrial customers with a service area of about 12,000 square miles in the state of North Carolina.

Exhibit 3

PSNC's service territory



Source: SPGMI

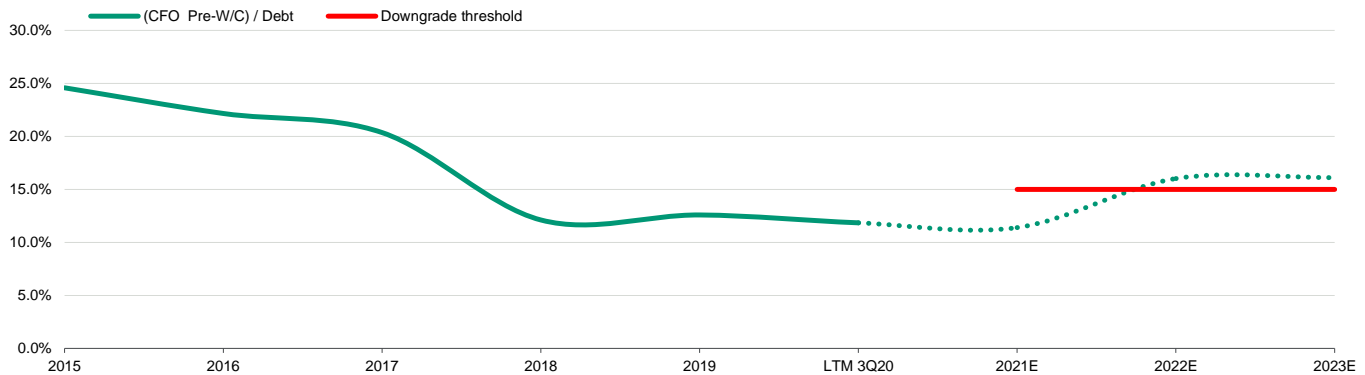
Detailed credit considerations

Weak financial profile should improve with new rate structure in the next 12 months

In November 2018, the NCUC approved the proposed merger of PSNC's parent company SCANA with Dominion. As a condition to the approval order, PSNC agreed to a base rate freeze through November 2021 and to provide customer bill credits of \$1.3 million in each of January 2019, 2020 and 2021. As a result, the company's key financial metrics, such as CFO pre-WC to debt, have declined materially over the past 3 years, well below our 15% financial metric threshold identified in the "Factors that could lead to a downgrade" above.

However, during this time, Dominion has refrained from extracting dividends from the utility and contributed \$70 million of equity used to repay intercompany borrowings - a show of parental credit support and conservative financial policies for PSNC. Moreover, PSNC's cash flow metrics should improve materially once it is able to implement new rates to recover investments and higher operating costs and capital spending through a general rate case, as seen in the exhibit below. We expect PSNC to exhibit run-rate CFO pre-WC to debt metrics between 15-17% once full rate recovery is in place.

Exhibit 4
 PSNC's ratio of CFO pre-WC to debt should recover in 2022, after a full year of higher rates



The downgrade threshold indicated is one of several factors that could lead to a downgrade if the metric is consistently below that level.
 Source: Moody's Investors Service

We expect the company to file a rate case soon, given that the rate freeze expires in November 2021. However, the revenue increase associated with the investment recovery will be tempered by cash flow reductions that are commensurate with the December 2017 Tax Cuts and Jobs Act (i.e., loss of bonus depreciation for utilities, federal tax rate reduction to 21% from 35% and the cash return of excess deferred income taxes over a period of time). This will likely keep CFO pre-WC to debt below 18%, even when assuming a supportive general rate case outcome.

We also note that several requests for rate increases across the US have been delayed or mitigated due to economic pressures of the COVID-19 pandemic in 2020. Our base case assumption is that the NCUC will continue to provide adequate and timely recovery of PSNC's costs, as evidenced in roughly \$85 million of rate increases allowed in 2020 via the CUT and IMT mechanisms. Should PSNC's rate freeze be extended beyond the November 2021 time frame, the company's financial profile would continue to deteriorate and additional credit pressure could ensue.

Low business risk in a supportive regulatory environment

PSNC's credit profile reflects a supportive regulatory environment in North Carolina. PSNC's gas distribution operations are characterized as low business risk due to their regulated nature, an asset base with no cast iron or bare steel piping and a mostly residential customer base.

PSNC benefits from a suite of cost recovery mechanisms, including Rider D – for recovery of all prudently incurred gas costs including realized and unrealized gains and losses from its hedging activities, and a Customer Usage Tracker (CUT) (decoupling) that allows the PSNC to periodically adjust rates for residential and commercial customers based on average per customer consumption.

Another particularly helpful mechanism is the IMT to track and provide ongoing recovery of capital expenses relating to its transmission and pipeline integrity programs, along with regulatory accounting treatment for related operations and maintenance expenses. We view the use of trackers and riders as supportive of credit quality as they provide some assurance of recovery and significantly reduce regulatory lag, particularly when capital investment is growing. We note however, that while PSNC is able to recover its capital expenditures for pipeline integrity via rider, its increased operating and maintenance costs are subject to deferral and regulatory lag, which is negatively impacting cash flow.

Both the CUT and IMT have semiannual true-up's which have helped PSNC maintain steady CFO pre-WC amounts of around \$115 million per annum from 2018-LTM Q3 2020. The semiannual true-up's have been a positive aspect of regulatory support during 2020 and the accompanying COVID-19 economic pressures, which has been an important qualitative consideration in PSNC's credit profile.

Solid service territory economy, despite COVID challenges

Two of the largest portions of PSNC's service territory are the Raleigh – Durham region and the City of Asheville (Aaa stable), both of which have seen an uptick in unemployment due to COVID-19, but they have credit strengths that should persist longer term to support PSNC's investment cost recovery.

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The City of Raleigh (Aaa stable) is situated in North Carolina's "research triangle", which has several economic strengths despite COVID-19 pressures that have increased Raleigh unemployment to an expected 6.2% rate in 2020, up from 3.4% in 2019, according to Moody's Analytics (MA). MA cites Raleigh's economic strengths, including a low business and living cost environment compared to most other tech hubs, high per capita income that supports consumption, strong and improving migration and a high concentration of prime-age workers - all of which are credit positive features for a utility's service territory.

Asheville, on the other hand, has lower wages in public and private sectors and has been hit harder by its dependence on tourism. Asheville's unemployment rate is expected to be around 7.5% in 2020, compared to 3.2% in 2019, according to MA. That said, the city's position as a regional health care hub with favorable migration patterns should continue to support its underlying economic ability to absorb PSNC's rates.

ESG considerations

Environmental

PSNC has low carbon transition risk within the utility sector because it is a gas LDC and natural gas commodity purchase costs are fully passed through to customers with an effective cost recovery mechanism. Moreover, the company's decoupling mechanism helps to insulate its financial profile from the potential negative impacts of lower sales volumes, should usage decline.

However, its primary function is to deliver a fossil fuel for end-use combustion and, accordingly, has methane and ultimately carbon emissions associated with the product. As such, PSNC's business is exposed to longer-term carbon transition risks, especially if state and federal efforts seek to expedite the elimination of greenhouse gas emissions. Dominion is actively addressing its company wide greenhouse gas emissions, with the goal of reaching net zero emissions by 2050, which includes reducing the emission profile of PSNC.

Social

Social risks are primarily related to health and safety, demographic and societal trends, as well as customer relations as the company works to provide reliable and affordable service to customers and safe working conditions to employees.

Regarding affordability, we see the potential for rising social risks associated with the COVID-19 pandemic and its effect on PSNC's service territories to be less than other parts of the US, given Raleigh's economic strengths. However, should unemployment remain higher (e.g., MA expects Raleigh's unemployment rate to be about 6.2% for 2020 compared to 3.4% in 2019), it could make customers less able to absorb rate increases. Should this influence PSNC's next rate case outcome, the company's financial profile and cash flow ratios could remain weak for its current credit profile.

Governance

PSNC's governance is driven by that of Dominion Energy its ultimate parent company, a credit positive. Dominion's overall governance practices are strong, with alignment to credit supportive benchmarks regarding ownership, control, compliance and reporting practices. An area where disclosure could improve is in regard to strategic initiatives, such as public policies for Board approval of M&A transactions and asset sales or divestitures; especially since this is a focus of the company from time to time.

Liquidity analysis

PSNC depends upon its parent in order to maintain adequate liquidity. On a standalone basis, PSNC will continue to produce substantial free cash flow deficits, as its 2021 capex of nearly \$300 million continues to outpace cash flow from operations, which we expect to be around \$115 million for the year.

PSNC has a \$400 million inter-company credit agreement, with outstanding amounts reflected as "accounts payable-affiliated companies" on PSNC's balance sheet. At 30 September 2020, PSNC had borrowings outstanding of around \$123 million under this agreement. Dominion is also continually in a negative free cash flow position and relies on external credit and strong capital market support for its liquidity.

PSNC has \$150 million of private placement bonds due in February of 2020, which we understand is being addressed currently and we expect to be refinanced. The next long-term debt maturity is \$50 million due in January 2026.

Rating methodology and scorecard factors

Exhibit 5

Rating Factors

Public Service Co. of North Carolina, Inc.

Regulated Electric and Gas Utilities Industry [1][2]	Current LTM 9/30/2020		Moody's 12-18 Month Forward View As of Date Published [3]	
	Measure	Score	Measure	Score
Factor 1 : Regulatory Framework (25%)				
a) Legislative and Judicial Underpinnings of the Regulatory Framework	A	A	A	A
b) Consistency and Predictability of Regulation	Aa	Aa	Aa	Aa
Factor 2 : Ability to Recover Costs and Earn Returns (25%)				
a) Timeliness of Recovery of Operating and Capital Costs	A	A	A	A
b) Sufficiency of Rates and Returns	Baa	Baa	Baa	Baa
Factor 3 : Diversification (10%)				
a) Market Position	Ba	Ba	Ba	Ba
b) Generation and Fuel Diversity	N/A	N/A	N/A	N/A
Factor 4 : Financial Strength (40%)				
a) CFO pre-WC + Interest / Interest (3 Year Avg)	3.8x	Baa	3.5x - 4x	Baa
b) CFO pre-WC / Debt (3 Year Avg)	12.9%	Baa	10% - 13%	Baa
c) CFO pre-WC - Dividends / Debt (3 Year Avg)	10.4%	Baa	10% - 13%	Baa
d) Debt / Capitalization (3 Year Avg)	44.4%	A	40% - 45%	A
Rating:				
Scorecard-Indicated Outcome Before Notching Adjustment		Baa1		Baa1
HoldCo Structural Subordination Notching		0		0
a) Scorecard-Indicated Outcome		Baa1		Baa1
b) Actual Rating Assigned		Baa1		Baa1

[1] All ratios are based on 'Adjusted' financial data and incorporate Moody's Global Standard Adjustments for Non-Financial Corporations.

[2] As of 9/30/2020(L)

[3] This represents Moody's forward view; not the view of the issuer; and unless noted in the text, does not incorporate significant acquisitions and divestitures.

[4] Low business risk for financial strength

Source: Moody's Financial Metrics

Appendix

Exhibit 6

Cash Flow and Credit Metrics

CF Metrics	Dec-16	Dec-17	Dec-18	Dec-19	LTM Sept-20
As Adjusted					
FFO	152	171	128	127	148
+/- Other	-24	-14	-15	-12	-33
CFO Pre-WC	128	157	113	115	115
+/- ΔWC	-15	-53	-21	11	-11
CFO	113	103	92	126	104
- Div	34	36	44	13	0
- Capex	171	276	244	168	219
FCF	-92	-208	-196	-56	-115
(CFO Pre-WC) / Debt	22.2%	20.4%	12.1%	12.6%	11.8%
(CFO Pre-WC - Dividends) / Debt	16.3%	15.7%	7.4%	11.2%	11.8%
FFO / Debt	26.4%	22.2%	13.7%	14.0%	15.3%
RCF / Debt	20.5%	17.5%	9.0%	12.6%	15.3%
Revenue	423	470	500	545	521
Interest Expense	26	33	42	44	43
Net Income	57	70	84	74	88
Total Assets	2,048	2,357	2,569	2,784	2,891
Total Liabilities	1,272	1,552	1,712	1,779	1,832
Total Equity	775	806	857	1,005	1,059

All figures and ratios are calculated using Moody's estimates and standard adjustments. Periods are Financial Year-End unless indicated. LTM = Last Twelve Months

Source: Moody's Financial Metrics

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Exhibit 7

Peer Comparison Table

(In US millions)	Public Service Co. of North Carolina, Baa1 (Stable)			Piedmont Natural Gas Company, Inc. A3 (Stable)			DTE Gas Company A3 (Stable)			Spire Alabama Inc. A2 (Stable)		
	FYE Dec-18	FYE Dec-19	LTM Sept-20	FYE Dec-18	FYE Dec-19	LTM Sept-20	FYE Dec-18	FYE Dec-19	LTM Sept-20	FYE Sep-19	FYE Sep-19	LTM Pre20
Revenue	500	545	521	1,375	1,381	1,296	1,415	1,462	1,386	501	466	455
CFO Pre-W/C	113	115	115	285	475	418	337	368	427	137	176	174
Total Debt	934	911	970	2,395	2,906	3,146	1,826	1,997	2,102	521	624	678
CFO Pre-W/C + Interest / Interest	3.7x	3.6x	3.7x	3.9x	5.2x	4.0x	5.5x	5.5x	6.1x	7.9x	8.5x	8.2x
CFO Pre-W/C / Debt	12.1%	12.6%	11.8%	11.9%	16.3%	13.3%	18.5%	18.4%	20.3%	26.3%	28.3%	25.7%
CFO Pre-W/C - Dividends / Debt	7.4%	11.2%	11.8%	11.9%	16.3%	13.3%	12.3%	12.3%	14.0%	20.5%	25.2%	22.1%
Debt / Capitalization	47.2%	43.1%	43.4%	47.8%	48.3%	48.6%	43.9%	44.2%	44.0%	39.3%	43.0%	44.4%

All figures & ratios calculated using Moody's estimates & standard adjustments. FYE = Financial Year-End. LTM = Last Twelve Months.

Source: Moody's Financial Metrics

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Ratings

Exhibit 8

Category	Moody's Rating
PUBLIC SERVICE CO. OF NORTH CAROLINA, INC.	
Outlook	Stable
Senior Unsecured	Baa1
ULT PARENT: DOMINION ENERGY, INC.	
Outlook	Stable
Senior Unsecured	Baa2
Jr Subordinate	Baa3
Pref. Stock	Ba1
Commercial Paper	P-2

Source: Moody's Investors Service

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REPORT NUMBER 1260494

Public Service Company of North Carolina, Inc.
13 Month Average Capital Structure
as of June 30, 2021

	Amount (\$)	Ratio
Long-Term Debt	788,461,538	44.95%
Short-Term Debt	24,429,174	1.39%
Common Equity	941,069,646	53.65%
Total	1,753,960,358	100.00%

	Month	Long Term Debt	Short Term Debt ¹	Common Equity	Total Capitalization
1	Jun-20	800,000,000	25,017,758	856,807,289	1,681,825,047
2	Jul-20	800,000,000	25,748,827	854,030,961	1,679,779,788
3	Aug-20	800,000,000	26,647,593	851,658,548	1,678,306,141
4	Sep-20	800,000,000	28,747,278	850,644,511	1,679,391,789
5	Oct-20	800,000,000	31,280,422	855,952,362	1,687,232,784
6	Nov-20	800,000,000	30,062,376	869,521,678	1,699,584,054
7	Dec-20	800,000,000	27,263,949	982,326,920	1,809,590,869
8	Jan-21	800,000,000	23,449,771	1,008,954,936	1,832,404,707
9	Feb-21	650,000,000	17,289,837	1,028,359,633	1,695,649,470
10	Mar-21	800,000,000	17,091,169	1,022,385,311	1,839,476,480
11	Apr-21	800,000,000	18,735,536	1,026,605,556	1,845,341,092
12	May-21	800,000,000	21,572,056	1,025,354,999	1,846,927,056
13	Jun-21	800,000,000	24,672,687	1,001,302,697	1,825,975,384
	Average	788,461,538	24,429,174	941,069,646	1,753,960,358

¹ Gas Inventory per Public Staff witness Johnson, Exhibit I, Schedule 2-2.

2020 and 2021 Commission Approved Common Equity Ratio

n	Company	State Jurisdiction	Docket	Order Date	%Common Equity
1	MDU Resources Group	Wyoming	D-30013-351-GR-19	1/15/2020	51.25
2	Consolidated Edison Co.	New York	C-19-G-0066	1/16/2020	48.00
3	Roanoke Gas Co.	Virginia	C-PUR-2018-00013	1/24/2020	59.64
4	Cascade Natural Gas Corp.	Washington	D-UG-190210	2/3/2020	49.10
5	Atmos Energy Corp.	Kansas	D-19-ATMG-525-RTS	2/24/2020	56.32
6	Questar Gas Co.	Utah	D-19-057-02	2/25/2020	55.00
7	Light	Massachusetts	DPU 19-131	2/28/2020	52.45
8	Avista Corp.	Washington	D-UG-190335	3/25/2020	48.50
9	Northern Utilities Inc.	Maine	D-2019-00092	3/26/2020	50.00
10	Atmos Energy Corp.	Texas	D-GUD-10900	4/21/2020	60.12
11	Inc.	Colorado	D-19AL-0075G	5/19/2020	50.15
12	CenterPoint Energy Res.	Texas	D-GUD-10920	6/16/2020	56.95
13	Puget Sound Energy Inc.	Washington	D-UG-190530	7/8/2020	48.50
14	Texas Gas Service Co.	Texas	D-GUD-10928	8/4/2020	59.00
15	Questar Gas Co.	Wyoming	D-30010-187-GR-19	8/21/2020	55.00
16	Chattanooga Gas Co.	Tennessee	D-20-00049	9/14/2020	49.23
17	South Jersey Gas Co.	New Jersey	D-GR20030243	9/23/2020	54.00
18	Southwest Gas Corp.	Nevada	D-20-02023 (South)	9/25/2020	49.26
19	Southwest Gas Corp.	Nevada	D-20-02023 (North)	9/25/2020	49.26
20	Eversource Gas Company	Massachusetts	DPU 20-59	10/7/2020	53.25
21	Public Service Co. of CO	Colorado	D-20AL-0049G	10/12/2020	55.62
22	Northwest Natural Gas Co.	Oregon	D-UG-388	10/16/2020	50.00
23	NSTAR Gas Co.	Massachusetts	DPU 19-120	10/30/2020	54.77
24	Inc	Maryland	C-9644	11/7/2020	52.63
25	Corp.	New York	C-19-G-0379	11/19/2020	48.00
26	Rochester Gas & Electric Co	New York	C-19-G-0381	11/19/2020	48.00
27	Co.	Wisconsin	D-3270-UR-123(Gas)	11/24/2020	55.00
28	Southwest Gas Corp.	Arizona	D-G-01551A-19-0055	12/9/2020	51.10
29	Avista Corp.	Oregon	D-UG 389	12/10/2020	50.00
30	Baltimore Gas and Ele.	Maryland	C-9645 (Gas)	12/16/2020	52.00
31	New Mexico Gas Co.	New Mexico	C-19-00317-UT	12/16/2020	52.00
32	Wisconsin Power and Light	Wisconsin	D-6680-UR-122(Gas)	12/23/2020	52.53
33	Atlanta Gas Light Co.	Georgia	D-42315 (2020)	1/1/2021	56.00
34	Delmarva Power & Light Co.	Delaware	D-20-0150	1/6/2021	50.37
35	Cascade Natural Gas Corp.	Oregon	D-UG 390	1/6/2021	50.00
36	Ameren Illinois	Illinois	D-20-0308	1/13/2021	52.00
37	Black Hills/NE Gas Utility Co	Nebraska	D-NG-109	1/26/2021	50.00
38	Piedmont Natural Gas Co.	Tennessee	D-20-00086	2/16/2021	50.50
39	Pennsylvania	Pennsylvania	D-R-2020-3018835	2/19/2021	54.19
40	Washington Gas Light Co.	Dist. of Columbia	FC-1162	2/24/2021	52.10
41	Southwest Gas Corp.	California	A-19-08-015 (SoCal)	3/25/2021	52.00
42	Southwest Gas Corp.	California	A-19-08-015 (NoCal)	3/25/2021	52.00
43	Southwest Gas Corp.	California	A-19-08-015 (LkTah)	3/25/2021	52.00
44	Washington Gas Light Co.	Maryland	C-9651	4/9/2021	52.03
45	MDU Resources Group	North Dakota	C-PU-20-379	5/5/2021	50.31
46	Cascade Natural Gas Corp.	Washington	D-UG-200568	5/18/2021	49.10
47	Corning Natural Gas Corp.	New York	C-20-G-0101	5/19/2021	48.00
48	PECO Energy Co.	Pennsylvania	D-R-2020-3018929	6/17/2021	53.38
49	Avista Corp.	Idaho	C-AVU-G-21-01	7/1/2021	50.00
50	Hope Gas Inc.	West Virginia	C-20-0746-G-42T	7/27/2021	46.26
51	Liberty Utilities EnergyNorth	New Hampshire	D-DG-20-105	7/30/2021	52.00
52	Brooklyn Union Gas Co.	New York	C-19-G-0309	8/12/2021	48.00
53	KeySpan Gas East Corp.	New York	C-19-G-0310	8/12/2021	48.00
54	North Shore Gas Co.	Illinois	D-20-0810	9/8/2021	51.58
Average					50.90

Investment Risk Measures

Group of Natural Gas Utility Companies

Company Name	Value Line ¹					S&P ² Beta	S&P ² Quality Ranking	S&P ³ Bond Rating	Moody's ³ Bond Rating
	Safety Rank	Beta	Price Stability	Earnings Predict.	Financial Strength				
1 Atmos Energy	1	0.80	95	100	A+	0.40	A	A-	A1
2 Chesapeake Utilities	2	0.80	85	95	A	0.40	A	NA	NA
3 MDU Resources	3	1.10	75	75	B++	0.73	A-	BBB+	NA
4 National Fuel Gas	3	0.85	90	5	B+	0.74	B	BBB-	Baa3
5 New Jersey Resources	2	1.00	80	55	A+	0.54	A	NA	A1
6 Northwest Natural	3	0.85	85	5	A	0.46	B+	A+	Baa1
7 ONE Gas Inc.	2	0.80	95	100	B++	0.43	NR	BBB+	A3
8 South Jersey Inds.	3	1.05	60	65	B++	0.86	B+	BBB	NA
9 Southwest Gas	3	0.95	80	95	A	0.18	A	BBB+	Baa2
10 Spire Inc.	2	0.85	90	50	B++	0.30	A-	A-	Baa2
11 UGI Corp.	2	1.05	85	90	B++	1.00	A	NA	NA
Average	2.4	0.92	84	67		0.55			

Sources:

¹Value Line Investment Survey, May 28, 2021.

² CFRA, S&P Global Market Intelligence, Stock Report, September 4, 2021.

³ S&P Global Market Intelligence, Credit Rankings, September 15, 2021.

DCF MODEL

Company	Yield ²	Value Line ¹ Historical						Value Line Forecast			Yahoo ³	CFRA ⁵
		EPS	DPS	BPS	EPS	DPS	BPS	EPS	DPS	BPS	EPS	3-Yr. Pro.
		10-Yr	10-Yr	10-Yr	5-Yr	5-Yr	5-Yr	5-Yr ⁴	5-Yr	5-Yr	5-Yr	EPS
1 Atmos Energy	2.7	8.0	5.0	7.5	9.0	7.5	10.0	7.0	7.5	10.5	7.8	8.0
2 Chesapeake Utilities	1.6	9.5	6.5	9.5	9.0	7.5	11.0	8.5	8.0	6.5	4.7	NA
3 MDU Resources	2.7	0.5	3.0	---	5.5	4.5	-0.5	10.5	2.5	7.5	7.1	7.0
4 National Fuel Gas	3.5	3.5	3.0	1.0	4.0	2.5	-3.0	19.0	4.0	8.5	8.5	6.0
5 New Jersey Resources	3.4	6.0	7.0	7.5	5.5	6.5	8.5	2.0	5.5	6.0	6.0	8.0
6 Northwest Natural Gas	3.6	-1.5	1.5	1.0	1.5	0.5	---	5.5	0.5	8.5	5.5	4.0
7 One Gas	3.2	---	---	---	10.0	14.5	3.0	6.5	7.0	10.5	5.0	5.0
8 South Jersey inds.	5.0	1.5	6.5	5.5	-1.5	4.0	2.5	11.5	4.5	5.0	4.8	6.0
9 Southwest Gas Corp	3.5	7.5	8.5	6.0	5.5	8.0	7.0	8.0	4.5	7.0	4.0	8.0
10 Spire	3.7	1.5	4.5	7.0	4.5	6.0	5.5	10.0	4.5	7.5	7.3	4.0
11 UGI Corp.	3.0	5.5	8.0	7.0	7.0	7.5	5.5	6.5	4.5	7.0	7.8	8.0
Average	3.3	4.8	5.4	5.8	6.2	6.3	6.6	7.6	4.8	7.7	6.2	6.4
Average DCF Result		8.1	8.7	9.1	9.5	9.6	9.9	10.9	8.1	11.0	9.5	9.7

Sources:

¹Value Line Investment Survey, August 27, 2021

²Value Line Investment Survey, Summary and Index, June 18, 2021 through September 10, 2021.

³ Yahoo Finance, Projected Five Year Earnings Estimates, downloaded on June 30, 2021.

⁴ The 5-Yr. average calculation excludes the 19% National Fuel Gas growth estimate due to unsustainability.

⁵ CFRA Reports, September 3, 2021.

Note: Average calculation does not include negative values.

REGRESSION ANALYSIS OF APPROVED RETURNS ON EQUITY
FOR LOCAL NATURAL GAS DISTRIBUTION UTILITIES

		[A]	[B]	[C]=[A]-[B]
		General Rate Case		
		Gas Utility Approved ROE ¹	Moody's A-Rated Bond Yields ²	Gas Utility Risk Premium
	Year			
1	2007	10.22%	6.05%	4.17%
2	2008	10.39%	6.51%	3.88%
3	2009	10.22%	6.04%	4.19%
4	2010	10.15%	5.47%	4.68%
5	2011	9.91%	5.04%	4.87%
6	2012	9.93%	4.13%	5.80%
7	2013	9.68%	4.48%	5.20%
8	2014	9.78%	4.28%	5.50%
9	2015	9.60%	4.12%	5.49%
10	2016	9.53%	3.93%	5.60%
11	2017	9.73%	4.00%	5.73%
12	2018	9.59%	4.25%	5.34%
13	2019	9.72%	3.77%	5.95%
14	2020	9.46%	3.02%	6.45%
15	2021	9.61%	3.14%	6.47%
			Average	5.29%

Sources:

¹ S&P Global Market Intelligence, Regulatory Research Associates, "Major Rate Case Decisions: January - June 2021 (all rate cases), July 27, 2021.

² Moody's Bond Yields with annual data from January, 2007 through August, 2021.

REGRESSION ANALYSIS OF ALLOWED RETURNS ON EQUITY
FOR LOCAL NATURAL GAS DISTRIBUTION UTILITIES

<i>Regression Statistics</i>	
Multiple R	0.9270113
R Square	0.8593500
Adjusted R Squar	0.8485308
Standard Error	0.0011247
Observations	15

ANOVA					
	<i>df</i>	<i>SS</i>	<i>MS</i>	<i>F</i>	<i>Significance F</i>
Regression	1	0.000100473	0.0001005	79.428036	6.7269E-07
Residual	13	1.64444E-05	1.265E-06		
Total	14	0.000116917			

	<i>Coefficients</i>	<i>Standard Error</i>	<i>t Stat</i>	<i>P-value</i>
Intercept	0.086787204	0.001329144	65.295582	9.457E-18
X Variable 1	0.254245039	0.028527622	8.9122408	6.727E-07

A-Rated Public Utility Bond Yield	
Mar-21	3.44%
Apr-21	3.30%
May-21	3.33%
Jun-21	3.16%
Jul-21	2.95%
Aug-21	2.95%
Average	3.19%

Predicted Cost of Equity **9.49%**

Note:

$Predicted\ Cost\ of\ Equity\ of\ 9.49\% = 0.0867872 + 0.2542504 \times 3.19\%.$

COMPARABLE EARNINGS ANALYSIS

	2015	2016	2017	2018	2019	2020
1 Atmos Energy	9.9%	10.1%	9.8%	9.3%	8.9%	8.6%
2 Chesapeake Utilities	11.2%	10.0%	9.0%	10.9%	10.9%	10.1%
3 MDU Resources	7.3%	9.7%	11.7%	10.5%	11.8%	12.7%
4 National Fuel Gas	NMF	NMF	16.6%	20.2%	14.2%	NMF
5 New Jersey Resources	13.9%	11.8%	12.1%	16.9%	11.3%	10.6%
6 Northwest Natural	6.9%	6.9%	NMF	8.8%	7.5%	7.9%
7 ONE Gas Inc.	6.5%	7.4%	8.2%	8.4%	8.8%	8.8%
8 South Jersey Inds.	9.5%	8.0%	8.2%	9.2%	7.2%	9.8%
9 Southwest Gas	8.7%	9.1%	9.6%	8.1%	8.5%	8.7%
10 Spire Inc.	8.7%	8.2%	8.1%	9.5%	7.9%	3.2%
11 UGI Corp.	13.1%	12.6%	12.9%	13.2%	10.8%	13.6%
Average	9.6%	9.4%	10.6%	11.4%	9.8%	9.4%

	<u>Average</u>	<u>Median</u>
Historical ROEs, 66 observations	10.0%	9.5%

Sources:

¹ Value Line Investment Survey, August 27, 2021.

Summary

	Estimated Cost of Equity
<hr/>	
<u>DCF Method</u>	
Historical Growth Rates	9.15%
Historical & Forecasted Growth Rates	9.44%
Predicted Growth Rates	9.84%
<hr/>	
Risk Premium Method - LDCs	9.49%
<hr/>	
Average	9.48%

Experts Forecast Long-Term Stock and Bond Returns: 2019 Edition

Christine Benz
Jan 10, 2019

Savvy investors might view market predictions as pure folly. After all, it's next to impossible to predict what the market will return, especially over shorter time periods, so why bother?

It's certainly a mistake to try to predict the market in an effort to determine whether, when, and how much to hold in stocks and other asset classes. Even professional investors have struggled with tactical asset allocation, casting doubt on the ability of individual investors or even financial advisors to outperform strategic asset allocation with the approach.

But the fact is, even long-term, strategically minded investors need some type of market-return forecast to craft a financial plan. Without any view on how much stocks, bonds, and cash are apt to return, it's impossible to know how much you'll need to save and for how long. You can't know whether saving for retirement should be your sole financial preoccupation or whether you can hit other goals, such as college funding, along the way. To help turn your financial goals into reality, it's crucial to make assumptions about what the major asset classes, and in turn your own portfolio, are apt to return. That way you can determine how much of the heavy lifting for your plan will come from market appreciation and how much will have to come from your own contributions.

To help you arrive at an educated guess of how much the market will contribute to the success of your plan, I've been compiling annual looks at return expectations from market experts both inside and outside of Morningstar. Note that the parameters for these return estimates vary a bit; some of the return expectations are inflation-adjusted while others are not (nominal). Some of them are quite recent, while others date to earlier in 2018. In addition, some of the experts forecast returns for the next decade, while others employ slightly shorter time horizons.

Yet there were some commonalities among many of the forecasts. First, starting yields on intermediate-term bonds, historically a good predictor of future returns from bonds, suggest that bonds will give U.S. equities a run for their money over the next decade. In addition, many of the market forecasts suggest higher returns

from non-U.S. stocks, especially emerging markets, than U.S. over the next decade.

Before you take those return forecasts to the bank, however, it's important to bear in mind that these return estimates are more intermediate term than they are long. As such, they're the most relevant to investors whose time horizons are in that ballpark, or to new retirees who face sequence-of-return risk in the next decade. Investors with very long time horizons of 20 to 30 years or longer can reasonably assume that market returns will run in line with their very long-term historic norms: 8% to 10% for stocks and half that amount for bonds.

BlackRock Investment Institute

Highlights: 7% nominal (non-inflation-adjusted) return for U.S. large caps over the next decade; 9% for non-U.S. large caps; 3.3% for the U.S. Aggregate Bond index(December 2018).

Bond index(December 2018).

BlackRock Investment Institute's Capital Markets Assumption report is heavy on the disclaimers, noting that the assumptions are "not intended as a recommendation to invest in any particular asset class or strategy or as a promise--or even estimate--of future performance." For each asset class, the firm provides a median expected return, as well as "uncertainty bands" depicting returns in a range. The firm provides assumptions for conventional asset classes as well as nontraditional ones such as hedge funds and private equity.

BlackRock Investment Institute's 7% median expected return for U.S. stocks put it at the high end of our sampling, but its expectation that foreign stocks would outperform (9% for foreign large caps) was a common theme across many of the firms. Notably, however, BlackRock Investment Institute is less sanguine about the prospects for emerging markets than it is for the broad universe of global non-U.S. equities, making it something of an outlier among many of the firms in our sample.

John C. Bogle, founder of Vanguard Group

Highlights: 4%-5% returns for stocks (nominal); 4% nominal returns for bonds over the next decade (October 2018).

In an interview in October (prior to the recent market volatility), the Vanguard founder was a bit more optimistic about returns from U.S. stocks over the next decade than he had been in previous years. As always, Bogle backs into his

return forecast by looking at the equity market's current dividend yield, then factors in expected earnings growth and P/E multiple expansion or contraction. The S&P 500 currently yields about 2%, and Bogle expected in late October that earnings growth would run in the range of 5%. He then gave that 7% expected return (the 2% dividend yield plus 5% earnings growth) a haircut to account for his expected P/E contraction, bringing his self-described "reasonable expectation" for stocks down to between 4% and 5%. To arrive at his 4% return expectations for bonds over the next decade, Bogle uses a blend of the starting yields for Treasuries and high-quality corporates.

GMO

Highlights: negative 4.1% real (inflation-adjusted) returns for U.S. large caps over the next seven years; negative 0.2% real returns for U.S. bonds; 4.4% real returns for emerging-markets equities; 2.9% real returns for emerging-markets debt (November 2018).

As always, the return expectations from the notoriously pessimistic Grantham Mayo Van Otterloo run toward the gloomy side of our collected prognostications. The firm expects U.S. large caps and hedged international bonds to post the worst performance of all of its major asset classes over the next 7 years: It's forecasting negative 4.1% real returns for the former and negative 2.1% real returns from dollar-hedged international bonds from developed markets. The firm expects U.S. small-cap stocks to perform much better than large, but still believes that U.S. small-cap investors will sink into the red on an inflation-adjusted basis, losing 0.7%.

Consistent with its recent expectations, the firm is most sanguine about the prospects for emerging-markets equities and bonds, forecasting 4.4% real returns for emerging-markets equities and 2.9% gains for emerging-markets bonds. The firm is more optimistic still for the subset of emerging-markets equities it considers emerging markets value stocks, predicting a nearly 8% real return for the asset class.

It's worth noting that the firm's pessimism on U.S. equities and positive outlook for emerging markets has cost it on the return front over the past several years: Wells Fargo Absolute Return (WARAX), which GMO manages, has recently struggled and earns a Neutral rating from Morningstar's analyst team.

J.P. Morgan Asset Management

Highlights: 5.25% return assumption (nominal) for U.S. equities over a 10- to 15-year horizon; 4.5% nominal return assumption for U.S. investment-grade corporate bonds over 10- to 15-year holding period (October 2018).

J.P. Morgan Asset Management updates its capital return assumptions for major asset classes annually, and notes that its assumptions are little changed from 2018. One of the biggest upward revisions in the firm's return assumptions was in the realm of U.S. high-quality corporate bonds, from 3.5% to 4.5%. As with several of the other firms, J.P. Morgan Asset Management is more sanguine about the prospects for emerging markets equities than developed markets stocks; the firm's assumption is for an 8.5% return from the asset class over the next 10 to 15 years, a function of lower starting valuations.

Note that J.P. Morgan Asset Management expresses its return assumptions in nominal, rather than inflation-adjusted, terms. However, the firm describes its inflation expectations as dovish, meaning that it expects inflation to continue to be mild. Additionally, it's important to note that the firm published its report before markets took a dive at the end of 2018.

Morningstar Investment Management

Highlights: 1.8% 10-year nominal returns for U.S. stocks; 3.3% 10-year nominal returns for U.S. bonds (Sept. 30, 2018).

The headline here is that as of Sept. 30, 2018, Morningstar Investment Management expected higher gains from U.S. bonds than U.S. stocks over the next decade. As with GMO, however, the outlook is more optimistic for foreign equities: MIM expects U.S. holders of international developed equities to earn nearly 6% on a nominal (noninflation-adjusted) basis, and U.S. holders of emerging-markets equities to earn nearly 7% nominally. Morningstar Investment Management provides its latest return expectations in Morningstar Markets Observer; the latest issue will be out this month.

Research Affiliates

Highlights: 0.7% real returns for U.S. large caps during the next 10 years; 0.5% real returns for the Barclays U.S. Aggregate Bond Index (Dec. 31, 2018; valuation-dependent model).

Research Affiliates deserves plaudits for its intuitive and user-friendly scatter plot depicting the firm's expectations for 10-year returns and volatility from the major

can also adjust to see return expectations based on a valuation-focused model and one focused on dividends and growth.

The firm's recent 10-year risk/return expectations suggest that U.S. investors relying strictly on U.S. stocks and bonds could be disappointed over the next decade: The firm's valuation-dependent model calls for a 0.7% real return for U.S. large-cap stocks and 0.5% inflation-adjusted gains for the U.S. Aggregate Bond Index. Real return expectations are more encouraging for those two asset classes using the firm's "yield and growth" model--3.3% for U.S. large caps and 0.6% for the U.S. Aggregate Bond Index.

Like GMO and Morningstar, the firm has higher return expectations from foreign stocks and especially emerging markets. Its valuation-dependent model suggests a nearly 6% real return over the next decade from the MSCI EAFE index (developed markets foreign stocks) and a nearly 8% return from emerging markets equities.

Vanguard

Highlights: Nominal U.S. equity-market returns in the 3% to 5% range during the next decade; 6% to 8% returns for non-U.S. equities; 2.5% to 4.5% expected returns for global fixed-income markets (December 2018).

In its 2019 Economic and Market Outlook, Vanguard's Investment Strategy Group wrote that its 10-year return assumptions for global stocks and bonds are modestly higher than this time last year. But the firm isn't forecasting blockbuster gains from any of the major asset classes. It's expecting U.S. equities to post gains in the 3% to 5% range, lower than its forecast for non-U.S. equities (6% to 8%). Thus, like other firms, it's emphasizing the importance of geographic diversification. In contrast with several of the aforementioned firms, however, Vanguard calls valuations in emerging markets "stretched." Ditto for valuations in the U.S., which Vanguard's economists expect to contract as yields rise over the next decade.

Note that Vanguard expresses its capital markets return assumptions in nominal rather than inflation-adjusted terms. However, the report's authors don't see any reason for investors to expect runaway inflation.

Source:

<https://www.morningstar.com/articles/907378/experts-forecast-longterm-stock-and-bond-returns-2>

Why Market Returns May Be Lower and Global Diversification More Important in the Future

May 3, 2021



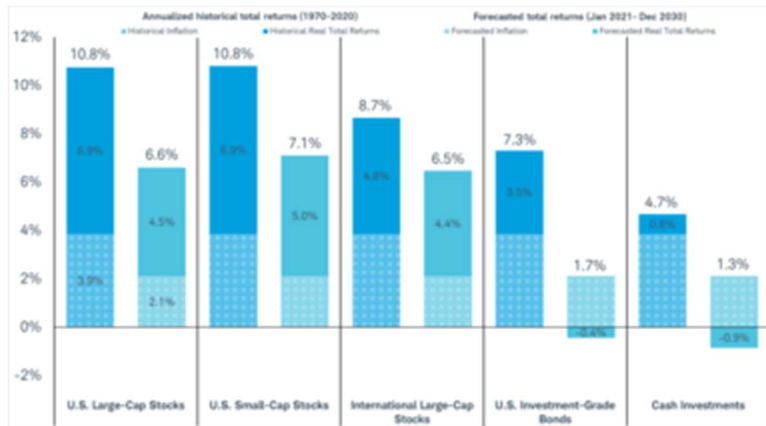
By [Veeru Perianan](#)

Market returns on stocks and bonds over the next decade are expected to fall short of historical averages, according to our 2021 estimates.¹ This article provides a broad overview of the methodology used for calculating our capital market return estimates and highlights the importance of diversification and staying focused on long-term financial objectives that are based on reasonable expectations.

The main factors behind the lower expectations for market returns are historically low interest rates, tepid long-term economic growth prospects, and elevated equity valuations.

The reduced outlook follows an extended period of double-digit returns for some asset classes, as shown in the chart below. As such, now may be a good time for investors to review, and consider resetting, long-term financial goals to ensure that they are based on projections grounded in disciplined methodology rather than on historical averages.

Curb your expectations



Total return = price growth plus dividend and interest income. The example does not reflect the effects of taxes or fees. Numbers rounded to the nearest one-tenth of a percentage point. Benchmark indexes for the asset classes: S&P 500® index (U.S. Large-Cap Stocks), Russell 2000® (U.S. Small-Cap Stocks), MSCI EAFE Index® (International Large-Cap Stocks), Bloomberg Barclays U.S. Aggregate Bond Index (U.S. Investment-Grade Bonds), and Citigroup 3-Month U.S. Treasury Bill Index (Cash Investments). Historical inflation is based on Consumer Price Index for All Urban Consumers, published by U.S. Bureau of Labor Statistics. **Past performance is no guarantee of future results.**

Source: Charles Schwab Investment Advisory, Inc. Historical data from Morningstar Direct. Data as of 12/31/2020.

Our estimates show that, over the next 10 years, stocks and bonds will likely fall short of their historical annualized returns from 1970 to December 2020. The estimated annual expected return for U.S. large-capitalization stocks from January 2021 to December 2030 is 6.6%, for example, compared with an annualized return of 10.8% during the historical period. Small-capitalization stocks, international large-capitalization stocks, core bonds, and cash investments also are projected to post lower returns through December 2030. We find the same pattern with *real* returns for these investments (i.e., returns after removing the effect of inflation). Which suggests that the reasons for this are more complex, and rest on the fundamental drivers of economic growth.

Expectations of rising inflation have been on many an investor's mind lately. The reasons are understandable, especially due to the Federal Reserve's current accommodative monetary policy as a response to the aftereffects of the pandemic on the economy. As the economy opens up and demand ramps up ahead of supply chains coming online, there could be increased inflationary pressures in the near term, but we do not believe this extends to the long term. As the economy readjusts, and we look toward the long term, we expect future inflation to remain benign at 2.1%. This is based on consensus estimates of leading economists, and is quite a bit lower than historical inflation, which has averaged 3.9% since 1970. The impact of inflation can be felt across asset classes, but most adversely in case of cash and bonds.

Cash expected returns are expected to remain low. Monetary policy, combined with investors' flight to safety, has caused bond term premiums—that is, the difference between the yields earned by locking up money over an extended period vs. rolling over a short-term instrument (like Treasury bills) for the same period—to turn negative. This suggests that bond returns are also likely to remain subdued.

Here are answers to frequently asked questions about these market estimates:

Why are long-term estimates of returns important?

A sound financial plan serves as a road map to help investors reach long-term financial goals. To get there, investors need reasonable expectations for long-term market returns.

Return expectations that are too optimistic, for example, could mislead investors to expect their investments to grow at an unrealistically high rate. This may cause them to save less, in the hope that their investments might grow large enough to fund their retirement or big expenses. But when actual returns do not match these expectations, it could lead to a delayed retirement or make it difficult to pay for a big expense, such as a college education. On the other hand, if return expectations are overly pessimistic, too much may be saved in the nest egg at the expense of everyday living.

How do you calculate your long-term forecasts?

The long-term estimates cover a 10-year time horizon. We take a forward-looking approach to forecasting returns, rather than basing our estimates on historical averages. Historical averages are less useful, as these only describe past performance. Forward-looking return estimates, however, incorporate expectations for the future, making them more useful for making investment decisions.

For U.S. and international large-cap stocks, we use analyst earnings estimates and macroeconomic forecast data to estimate two key cash-flow drivers of investment returns: recurring investment income (earnings) and capital gains generated by selling the investment at the end of the

forecast horizon of 10 years. To arrive at a return estimate, we answer the question: What returns would investors make if they bought these assets at the current price level to obtain these forecasted future cash flows?

For U.S. small-capitalization stocks, we forecast the returns by analyzing and including the so-called “size risk premium.” This is the amount of money that investors in small-capitalization stocks expect to earn over and above the returns on U.S. large-capitalization stocks.

For the U.S. investment-grade bonds asset class, which includes Treasuries, investment-grade corporate bonds and securitized bonds, our forecast takes into account yield-to-maturity of a risk-free bond, roll-down return, and a credit risk premium.² We believe the future level of return an investor will receive is anchored to a large extent by the yield of a 10-year U.S. Treasury bond. Treasury bonds are generally considered to be default-risk-free. Aside from this, roll-down return is an additional source of return bond fund investors typically earn, as they almost always invest in a bond portfolio that is designed to maintain an average maturity. For example, a roll-down return occurs when a bond fund manager sells a bond whose maturity falls below the average maturity of the portfolio. This process typically results in a gain because yields on bonds with longer maturities are usually higher than on shorter maturities, and because bond prices rise when yields fall. Credit risk premium is the return an investor earns for taking on the risk of default, as when investing in a relatively riskier bond, such as a corporate bond.

Cash investments are very short-term in nature, typically not exceeding three months at a given time, and are reinvested at the end of each period for as long of a horizon as desired. We assume this horizon to be 10 years and estimate the returns from cash investments over this period using a term premium model.

Why do you expect long-term returns to be lower than historical averages?

Three primary factors are behind the forecast for reduced returns: low interest rates, low economic growth, and equity valuations.

- **Low interest rates.** Lower inflation affects yields on everything from cash to 30-year Treasury bonds. As noted earlier, inflation is low by historical standards and expected to remain so over the next 10 years. When the rate of inflation is low, *nominal* bond yields also have been low. That is because bond investors generally do not require as much yield premium to compensate for the erosion in buying power that inflation can inflict on a portfolio. Nominal bond yields are the yields that investors typically notice and does not remove the impact of inflation, as *real* yields do. Current and expected interest rates are much lower than what has transpired historically, especially compared to the high-interest-rate environment of the 1980s. The Fed has once again started following a zero-interest-rate policy in response to the economic fallout due to COVID-19. Low yields mean investors earn less from the fixed-income portion of their portfolios.

- **Low economic growth.** Economic growth and inflation typically go hand in hand. Strong economic growth typically causes rising inflation, as demand grows faster than supply. Inflation induced by growth is a good thing, as asset returns also tend to increase. At present, while near term economic growth is likely to be robust, as the economy opens up (post-pandemic), consensus forecasts of economic growth over the long term remain subdued. A measure of economic growth is

annual *real* gross domestic product (GDP) growth. A robust economy is fundamental to achieving healthy returns from the financial markets. Everything from monetary policy, to interest rates and company earnings are linked to this. According to consensus forecasts, economists expect 2.3% GDP growth per year, on average, over the next 10 years, even after accounting for expectations of increased economic activity post-pandemic. This compares to historical average GDP growth of 3.1% per year (since 1948).

- ***Equity valuations.*** Valuations appear to be stretched compared to last March's levels. While earnings growth is expected to remain strong in the medium term—as the economy starts to get back to normal post-pandemic—the stock rally since last March has run far ahead of these expectations. High stock prices today, without a proportionate increase in future earnings, mean lower expected returns going forward. But stocks still tend to have higher expected returns than bonds, as they generally have higher risks.

What could lead to higher returns?

Returns could exceed our expectations if the U.S. economy grows more than economists anticipate. Higher-than-expected economic growth would likely lead to higher earnings growth, driving stock and bond returns higher. An example of the economy growing faster than expected occurred from 1990 to 1999. During that period, economists expected annual GDP growth of 2.4%, while the U.S. economy grew at a much higher rate of 3.4% annually on average. Corresponding returns from U.S. large-capitalization stocks were 18.2% on average and core bonds averaged 7.7% despite severe market turbulence in 1998.

What can investors do now?

Thanks to the power of compound returns, what investors do (or don't do) today can have big implications on their ability to meet their long-term goals.

Here are a few things to consider doing. First, if you don't have a long-term [financial plan](#), now is a good time to put one together. Second, try to minimize fees and taxes, particularly in a lower-return environment. And last but not least: Build a [well-diversified portfolio](#).

Public Service Company of North Carolina, Inc.
Overall Cost of Capital and Capital Structure
as of June 31, 2021

	Amount (\$)	Ratio	Cost Rate	Weighted Cost Rate ¹	Pre-Tax Cost of Capital
Long-Term Debt	836,814,487	47.71%	4.45%	2.123%	2.13%
Short-Term Debt	24,429,174	1.39%	0.25%	0.004%	0.00%
Common Equity	892,765,822	50.90%	9.48%	4.825%	6.28%
Total	1,753,960,358	100.00%		6.95%	8.41%

Pre-Tax Interest Coverage² 3.9

Note:

- ¹ The calculation of the cost rate is rounded to the thousandth place and the overall weighted cost rate of capital is rounded to the hundredths place.
- ² The pre-tax cost of debt and equity is grossed up by tax retention factors of 0.9967 for debt capital and 0.7677 for equity capital.