BEFORE THE NEW YORK STATE
PUBLIC SERVICE COMMISSION

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Proceeding on Motion of the Commission :
as to the Rates, Charges, Rules and :
Regulations of Orange and Rockland :   **Case 21-G-0073**
Utilities, Inc. for Gas Service. :
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Proceeding on Motion of the Commission :
as to the Rates, Charges, Rules and :
Regulations of Orange and Rockland :   **Case 21-E-0074**
Utilities, Inc. for Electric Service. :
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DR. BENTE VILLADSEN
(RETURN ON EQUITY)
REBUTTAL TESTIMONY

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BEFORE THE

STATE OF NEW YORK PUBLIC SERVICE COMMISSION

CASE 21-E-0074

) Proceeding on Motion of the Commission as to the
) Rates, Charges, Rules and Regulations of Orange
) and Rockland Utilities, Inc. for Electric Service.
)
)
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CASE 21-G-0073
) Proceeding on Motion of the Commission as to the
) Rates, Charges, Rules and Regulations of Orange
) and Rockland Utilities, Inc. for Gas Service.
)

REBUTTAL TESTIMONY OF DR. BENTE VILLADSEN

RETURN ON EQUITY

June 18, 2021

Brattle

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1   **1. INTRODUCTION**

2   **Q1: Please state your name, occupation, and business address for the record.**

3   A1: My name is Bente Villadsen and I am a Principal of The Brattle Group, whose business

4   address is One Beacon Street, Suite 2600, Boston, Massachusetts, 02108.

5   **Q2: Are you the same Bente Villadsen who filed Direct Testimony in this matter?**

6   A2: Yes.

7   **Q3: What is the purpose of your Rebuttal Testimony?**

8   A3: I have been asked to review and comment on the Direct Testimony of the Staff Finance Panel

9   as it pertains to cost of capital and capital structure for Orange and Rockland Utilities, Inc.

10   ("Orange and Rockland" or the "Company").[1]

11   **Q4: Is there anything in the Staff Testimony that caused you to change your**

12   **recommended return on equity ("ROE") for Orange and Rockland?**

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[1] Prepared Testimony of Staff Finance Panel, Kristine A. Prylo, Vincent S. Califano, and Hasan Ahmed, Cases 21-G-0073 and 21-E-0074, May 2021 ("Staff Testimony").

1 A4: No. Having reviewed the Staff Testimony, I continue to find that my original
2 recommendation for a ROE of 9.75 percent (9.95% including flotation costs) at the requested
3 50.0% equity capital structure is reasonable. I also find that the Company's requested ROE
4 of 9.50 percent at the requested 50.0% equity capital structure remains very reasonable.[2] I
5 acknowledge that since my Direct Testimony, economic conditions have changed as
6 COVID-19 vaccine distributions allow social distancing measures to be relaxed and the
7 economy to re-open. Additionally, a new administration has taken office and economic
8 stimuli has been passed. I address the impacts of these changes in further detail in Section
9 5 below.

10 **Q5: Please summarize your Rebuttal Testimony.**

11 A5: Having reviewed the Staff Testimony, I summarize my findings below as follows:

12   A. The ROE recommended by Staff is much too low and is out of line with prevailing
13   market conditions and the ROEs that are available to similarly situated utilities in
14   other jurisdictions. I reviewed the allowed ROEs for other electric utilities and find
15   that Staff's recommendation is well below what has recently been awarded. If the
16   New York Public Service Commission ("Commission") awarded Staff's
17   recommendation, it would be the lowest ROE in the country awarded in the normal
18   course of service regulation.

19   B. Staff's recommendation is downwardly biased due to the choice of inputs to Staff's
20   Discounted Cash Flow ("DCF") model, Capital Asset Pricing Model ("CAPM"), and
21   Zero-beta CAPM. Staff also fails to consider results from other well-recognized
22   models (*e.g.*, the Risk Premium Model). The mechanical weighting that puts 2/3
23   weight on the DCF and much less weight on the CAPM and Zero-beta CAPM also
24   downward biases the results.

25   C. Staff fails to properly account for the impact of financial leverage. The approaches
26   used in my analysis—the after-tax weighted average cost of capital and the Hamada

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[2] My Direct Testimony found a range of 9.5 to 10.0 percent to be reasonable.

1   method—are standard methodologies taught in MBA textbooks and are considered
2   in several regulatory jurisdictions.

3   Broadly speaking, it is imperative that the Commission allow a ROE that not only fulfils the
4   capital attraction criteria (recognized by Staff) but also allows Orange and Rockland the
5   opportunity to earn a return that is comparable to that available on similar risk investments.
6   I view the ROE awarded to other electric utilities as one benchmark and Staff's proposed
7   ROE is out of line with that benchmark.

8   **2. SUMMARY OF RECOMMENDATIONS**

9   **Q6: Please summarize the Staff Testimony recommendations.**

10   A6: Figure R-1 below summarizes the recommended allowed ROE for Orange and Rockland
11   and also shows the recommendation from my Direct Testimony.

12   **FIGURE R-1: SUMMARY OF RECOMMENDEDS FOR ORANGE AND ROCKLAND**

	Recommended ROE	Range
Villadsen	9.75%	9.5% - 10.0%
Staff Finance Panel	8.75%	8.4% - 9.56%

13   Source: Staff Testimony, pp. 93-94. Does not include flotation costs.

14   The Staff Testimony recommends a ROE of 8.75 percent on a 48.0% equity capital
15   structure.[3] Staff bases its ROE recommendation on a multi-stage version of the DCF model
16   that uses a sustainable growth rate, the CAPM, and a version of the Zero-beta CAPM. Staff
17   weights its DCF estimate by 2/3 and the average of its CAPM and Zero-beta CAPM estimates
18   by 1/3.

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3 Staff Testimony, p. 10.

1   An important observation is that both Staff's and my range include the Company's requested

2   9.5% ROE.

3   **Q7:   What is your reaction to Staff's recommended ROE?**

4   A7:   Staff's recommended ROE is far too low. Staff's recommendation does not account for risks

5   associated with the on-going heightened market uncertainty or Orange and Rockland's

6   specific risks relative to Staff's proxy sample. Staff's recommended ROE also does not

7   account for differences in financial leverage between the proxy group and the Company, a

8   standard financial technique used by financial professions and used in other regulatory

9   settings. Staff also relies on a mechanical weighting of the DCF and CAPM models, which

10   fails to recognize that different models may capture different aspects of the cost of equity

11   under different financial and economic conditions. Finally, Staff relies on inputs that reflect

12   current market conditions and not the conditions that are expected to prevail over the relevant

13   rate period, resulting in downwardly biased results.

14   **Q8:   What is your reaction to Staff's recommended capital structure?**

15   A8:   Staff states that

16   [Orange and Rockland's] requested ROE is excessive and unnecessary in
17   order for the Company to continue to attract capital at reasonable terms.[4]

18   And

19   We believe that authorization of a 48.00% common equity ratio will be
20   sufficient for the Company to continue to attract capital at reasonable
21   terms.[5]

22   And

23   Adopting our recommendations should result in financial metrics that
24   would be sufficient for [Orange and Rockland] to maintain its current credit
25   ratings.[6]

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4 Id.

5 Ibid., p. 19.

6 Ibid., pp. 139-140.

1   The requirements to the allowed ROE is *not* whether the Company is able to attract capital

2   on reasonable terms or maintain its credit rating. Rather, as noted in my Direct Testimony,

3   the allowed ROE must satisfy the following three-pronged test as set forth in the seminal

4   U.S. Supreme Court cases of *Bluefield* and *Hope*:[7]

5   • The return on equity should be commensurate with returns on investments in other

6   enterprises having corresponding risks;

7   • The return should be reasonably sufficient to assure confidence in the financial

8   soundness of the utility; and

9   • The return should be adequate, under efficient and economical management for the

10   utility to maintain and support its credit and enable it to raise the money necessary

11   for the proper discharge of its public duties.

12   Staff's statements fail to consider the first prong of the *Hope* and *Bluefield* decisions, albeit

13   Staff in other statements appears to acknowledge the need for a comparable return.[8]

14   I also disagree with Staff's conclusion that the Company's requested ROE of 9.50 percent at

15   a proposed 50% equity capital structure is "excessive and unnecessary." As a matter of fact

16   the 9.50 percent ROE is very much in line with the approximately 9.50% ROE the average

17   electric utility has been awarded in 2021 year-to-date on an equity percentage of about

18   50.4%.[9]

19   **3. STAFF'S APPROACH TO ESTIMATING THE COST OF EQUITY**

20   **A. OVERALL APPROACH**

21   **Q9: How does Staff approach estimating the cost of equity for Orange and Rockland?**

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7 Bluefield Water Works & Improvement Co. v. Public Service Com'n of West Virginia, 262 U.S. 679 (1923) ("Bluefield"), and Federal Power Com'n v. Hope Natural Gas Co., 320 U.S. 591 (1944) ("Hope").

8 Ibid., pp. 11-12.

9 S&P Global Intelligence, Rate Case History, accessed June 9, 2021.

1   A9:   Staff estimates the cost of equity for Orange and Rockland using three models – a multi-

2   stage DCF model, a CAPM analyses, and a Zero-beta CAPM analysis. Staff relies on a proxy

3   group of 26 electric utility companies, similar to the electric utility proxy group that I use

4   my analysis. However, Staff does not consider other highly regulated utilities in their

5   analyses, such as gas utilities.[10] When deriving ROE estimates from the DCF and CAPM

6   models, Staff does not use standard financial techniques to calculate the impacts of financial

7   leverage in their analyses. Finally, Staff arrives at its recommended ROE of 8.75% by

8   weighting their DCF results by two-thirds and weighting the average of their CAPM analyses

9   by one-third.

10   **B. PROXY GROUP**

11   **Q10: How does Staff's proxy group criteria compare to your proxy group criteria?**

12   A10: Both Staff and I select a proxy group from publicly-traded holding companies deemed by

13   Value Line to be "electric utilities."[11] Staff and I then apply several selection criteria to arrive

14   at our final sets of proxy companies. We both agree that proxy companies need to be

15   dividend paying and investment grade. We also agree that merger or acquisition ("M&A")

16   activities could impact the estimation process. However, Staff excludes companies involved

17   in merger or acquisition activities at the time of their analysis, whereas I exclude companies

18   that engaged in such activities during the estimation period.[12] Finally, Staff and I consider

19   the degree to which a company is involved in regulated activities. Staff uses revenues as

20   their metric and requires that at least 70% of revenues be from regulated activities. Whereas,

21   I consider the degree to which the companies' assets are subject to regulation. I require that

22   the majority of a company's assets be subject to regulation. Finally, Staff also eliminated

23   Fortis Inc. because it reports earnings in a foreign currency and Evergy, Inc. because it has

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[10] See Section 5A of my Direct Testimony where I discuss why natural gas utilities are an appropriate proxy sample for a combination electric and natural gas utility, such as Orange and Rockland.

[11] I also consider a proxy group of highly regulated natural gas utilities.

[12] I use a five-year estimation period because the Value Line betas are based on five years of weekly data.

1   only been publicly traded since June 2018.[13] Staff also included MGE and Hawaiian Electric

2   Industries despite these companies failing Staff's credit rating criteria.[14]

3   **Q11: What are the resulting differences in Staff's and the Company's proxy groups?**

4   A11: Staff includes CenterPoint, Duke, and NextEra, which I excluded from my electric proxy

5   group due to recent dividend cuts (CenterPoint) and merger or acquisition activity (Duke

6   and NextEra). In turn, I included DTE Energy, Exelon, Otter Tail, and Public Service

7   Enterprise Group, which all have a substantial amount of regulated assets but not 70%

8   revenues from regulated assets. I also included PPL which at the time of my analysis was

9   not engaged in recent merger or acquisition activity.[15] Lastly, I included Unitil in my proxy

10   group, however Staff excluded it because it lacked a Value Line dividend forecast.[16] I was

11   able to obtain a growth rate for Unitil from IBES.[17]

12   Staff also did not consider any natural gas utilities (as classified by Value Line) in its proxy

13   samples, whereas I also included a proxy group of nine highly regulated natural gas

14   utilities.[18] Staff argues that because Orange and Rockland only derives approximately one-

15   third of its total operations from natural gas and is thus not comparable to natural gas

16   utilities.[19] Staff also argues that a sample of nine companies is not a sufficiently large sample

17   to provide meaningful information about the risks involved in a given enterprise.[20]

18   **Q12: What comments do you have on Staff's proxy group?**

19   A12: First, I find that Staff's use of regulated revenue is not an appropriate metric for proxy group

20   selection criteria. Instead, I use assets to determine the degree to which a company is

21   regulated because it is assets that are fundamentally regulated—the revenue requirement is

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[13] Staff Testimony, p. 65. However, Evergy Inc. is the continuation of two well-established electric utilities: KCPL and Westar Energy.

[14] Ibid., p. 66.

[15] Ibid., p. 106. PPL announced its divesture on March 18, 2021 – well after the date of my estimation cutoff.

[16] Id.

[17] Villadsen Exhibit BV-3.

[18] See Villadsen Direct Testimony, Section 5A.

[19] Staff Testimony p. 108.

[20] Ibid., p. 109

1   derived from the regulated assets of a utility. Stated differently, assets are used as an input

2   to determine a regulated utility's revenues. Finance also utilizes the equity and asset betas

3   to assess the risk characteristics of companies.[21] Therefore, I find that assets are the more

4   appropriate metric of whether a company is sufficiently regulated. [22]

5   Second, I disagree with Staff's assertion that natural gas utilities are less comparable to

6   Orange and Rockland and therefore should not be included in the proxy group.

7   Fundamentally, Orange and Rockland is a combination electric and gas utility, so gas utilities

8   are plainly one benchmark. Also, similar to electric utilities, natural gas utilities are highly

9   regulated and operate a network of assets to deliver commodities to end-use customers. Both

10   types of utilities are capital intensive, requiring substantial investments in fixed assets to

11   generate revenue. Staff's assertion that a sample size of nine gas utilities is too small is ill-

12   founded and Staff provides no analysis to substantiate this claim. My sample of nine natural

13   gas utilities represents over half of the "universe" of companies classified as natural gas

14   utilities by Value Line.[23] In addition, the Federal Energy Regulatory Commission ("FERC")

15   has stated its willingness to accept proxy groups of "at least four and preferably at least five

16   members" in pipeline cost of capital cases.[24] Lastly, as noted in my Direct Testimony, my

17   ROE recommendation focuses on the results from the electric utility proxy group.[25]

18 **C. STAFF'S CAPM AND ZERO-BETA CAPM**

19 **Q13: Please summarize Staff's CAPM and Zero-beta CAPM analyses.**

20 A13: Staff implements a standard CAPM analyses and a Zero-beta CAPM analyses. Staff's risk

21   free rate is based on the average current yield on 10-year and 30-year Treasury bonds over

22   the three month period of January to March 2021. This results in a risk-free rate of 1.69%.[26]

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[21] See, *e.g.*, Brealey, Myers and Allen (2011), pp. 174-175 and 220-221.

[22] I do not take issue with Staff eliminating companies that currently are engaged in M&A or which lack data.

[23] Value Line, as of October 15, 2020.

[24] FERC, "Inquiring Regarding the Commission's Policy for Determining Return on Equity," 171 FERC ¶61,155 Docket No. PL19-4-000, Issued May 21, 2020.

[25] Villadsen Direct Testimony, p. 5.

[26] Staff Testimony, p. 84.

1 Staff uses the average Value Line beta for its proxy group, 0.88.[27] Staff relies on data from

2 Merrill Lynch for its market risk premium ("MRP"). Merrill Lynch reports the forecasted

3 market return is 10.35% from which Staff subtracts its risk-free rate (1.69%) to obtain an

4 MRP of 8.66%.[28] Staff also implements a Zero-beta CAPM, which uses the same inputs as

5 the CAPM but makes adjustments to correct for empirical findings that the Security Market

6 Line is flatter than predicted by CAPM. Staff's Zero-beta CAPM analysis is similar to the

7 ECAPM I use in my analyses. Staff's CAPM and Zero-beta CAPM result in a cost of equity

8 estimate of 9.30% and 9.56%, respectively. Staff then averages the two to arrive at a CAPM

9 estimate of 9.43%.[29]

10 **Q14: What are your comments regarding Staff's implementation?**

11 A14: First, the three-month average risk-free rate is, in my opinion, not representative of the risk-

12 free rate that will prevail during the relevant regulatory period and especially not at this point

13 in time, when the risk-free rate is almost at a record low. As discussed in further detail in

14 Section 5 below, yields on U.S. Government bonds are near historic lows due to on-going

15 quantitative easing programs by the Federal Reserve. In recent months, measures of inflation

16 have increased. If these inflation trends persist it will put upward pressure on Treasury

17 yields. Instead, I find it more appropriate to use a forecasted risk-free rate when estimating

18 the cost of capital – specifically, I used a risk-free rate of 2.15% based on forecast of U.S.

19 Government bond yields from *Blue Chip Economic Indicators*.[30] I note that the current yield

20 on 20-year U.S. Government bond is 2.22%, above Staff's "current" risk-free rate (1.69%)

21 and closer to the risk-free rate used in my analysis.[31] The June 2021 publication of *Blue Chip*

22 *Economic Indicators* forecasts that yields on 10-Year U.S. Government bond will average

[27] Ibid. p. 85.

[28] Ibid., pp. 88-89.

[29] Ibid., p. 93.

[30] Villadsen Direct Testimony, p. 48. The October 2020 *Blue Chip Economic Indicators* ("BCEI") estimated the 10-year U.S. Treasury bond yields will be 1.4% in 2022. I then adjusted this upwards by 50 basis points to reflect the historical maturity premium between 10-year and 20-year treasuries. I also added 25 basis to reflect half of the currently elevated spread between utility bond yields and U.S. Government bond yields.

[31] U.S. Department of the Treasury, Daily Treasury Yield Curve Rates, data as of June 1, 2021, accessed June 7, 2021. https://www.treasury.gov/resource-center/data-chart-center/interest-rates/pages/textview.aspx?data=yield

1   2.1% in 2022.[32] Staff does not apply standard financial techniques to take leverage into

2   account when estimating the ROE (I discuss this further in Section 4 below). Lastly, Staff

3   averages the 10-year and the 30-year U.S. Government bond yield to obtain their risk-free

4   rate.

5   Staff and I both implement a version of the Zero-beta CAPM. While the formula I use in my

6   ECAPM analysis is different than that used in Staff's Zero-beta CAPM, both formulas take

7   into account the empirical findings that CAPM underestimates the required return on equity

8   for companies with betas less than 1.0. Therefore, I shall not address the formula used in

9   Staff's Zero-beta CAPM.

10   **Q15: What are the consequences of Staff's implementation choices?**

11   A15: In Figure R-2 below, I adjust Staff's CAPM and Zero-beta CAPM analyses to reflect the

12   forecasted risk-free rate for 2022; which is 2.6% using the forecast from *Blue Chip Economic*

13   *Indicators* as of June 2021 and adjusting for historic maturity premium between 10-year and

14   20-year U.S. Government bond yields.[33] I also adjust Staff's MRP to reflect the higher risk-

15   free rate. Staff uses a forecasted market return of 10.35%, from which I subtract the new risk

16   free rate (2.6%) to arrive at a MRP of 7.75%. The resulting impacts of these adjustments are

17   as follows:

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[32] Wolters Kluwer Blue Chip Economic Indicators and PwC Analysis, Consensus Forecasts, June 2021, p. 3.

[33] Wolters Kluwer Blue Chip Economic Indicators and PwC Analysis, Consensus Forecasts, June 2021, p. 3.
Historic maturity premium is approximately 50 basis points.

1 **FIGURE R-2: STAFF'S CAPM AND ZERO-BETA CAPM**
2 **ADJUSTED TO USE FORECASTED RISK FREE RATE**

Model		Risk Free Rate	Staff Sample Average Beta	Market Risk Premium	Cost of Equity Estimate
		[1]	[2]	[3]	[4]
CAPM	[a]	2.6%	0.88	7.8%	9.42%
Zero-Beta CAPM	[b]	2.6%	0.88	7.8%	9.65%
Average	**[c]**				**9.54%**

Sources and Notes:

[1]: BCEI June 2021 p. 3; projection of 10-year US Treasury Note yield for 2022 plus 50bps maturity premium adjustment.

[2]: Staff Testimony P. 85.

[3] = 10.35% - [1], where 10.35% represents Staff's market return input assumption.

[4][a] = [1][a] + [2][a] x [3][a]

3 [4][b] = [1][b] + ([2][b] x 0.75 x [3][b]) + (1 x 0.25 x [3][b])

4   As shown in Figure R-2 above, Staff's use of a historic yield downwardly biases the
5   estimated ROE by 11 basis points.[34] Importantly, this simple modification to Staff's inputs
6   results in an average ROE that is slightly above the Company's requested ROE. In Section
7   4 below, I demonstrate the extent to which Staff's CAPM estimates are downwardly biased
8   due to not considering financial leverage.

9 **D. STAFF'S DCF**

10 **Q16: How does Staff implement its DCF Model?**

11 A16: Staff implements a two-stage DCF where the first stage uses Value Line's forecasted
12   dividend growth rates through 2026. The second stage uses a sustainable growth rate and
13   goes for 195 years.[35] Staff's sustainable growth rate is calculated as:

14 $$g_2 = b \times r + s \times v$$

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[34] Calculated as the new CAPM average of 9.54% minus Staff's calculated average of 9.43%.

[35] Staff Testimony, p. 74. Theoretically, the DCF model considers an indefinite horizon, rather than relying on a 200-year dividend stream. I do not believe it makes a difference to the calculated ROE.

1   Where *b* is the dividend retention rate, *r* is the expected accounting ROE, *s* is growth in

2   shares, and *v* is the growth from share prices above book value.[36]

3   **Q17: What concerns do you have with Staff's DCF methodology?**

4   A17: There are several inherent problems with Staff's approach. First, the DCF model

5   fundamentally states that the discounted cash flow that accrues to shareholders equals the

6   stock price.[37] However, the use of dividend growth without any consideration of other

7   means of distributing cash is problematic. Companies increasingly use share buybacks to

8   distribute to investors, but this is not captured in this approach. The reliance on cash flow or

9   earnings instead of dividends ensure that over time all cash flow to shareholders are counted

10   as such.

11   Second, there are apparent inconsistencies in Staff's data or in the approach that they use.

12   The average and median ROE in 2025 for Staff's proxy sample is 10.70% and 10.67%,

13   respectively.[38] But the average and median ROE estimated by Staff are about 230 basis

14   points *lower* at 8.40% and 8.21%, respectively. This inconsistency indicated in the data or

15   methodology used to estimate the ROE in Staff's DCF calculation, as I see no logical

16   explanation why Value Line predicts a ROE of well over 10.0 percent while Staff estimate a

17   ROE that is over 200 basis points lower.

18   Lastly, Staff only uses Value Line to obtain its forecasted data. As a result, Staff is relying

19   on a single analyst's forecast to perform the DCF. Instead, Staff should incorporate

20   consensus estimates from other data providers, such as Thomson Reuters IBES or

21   Bloomberg.

22   **Q18: What are the consequences of Staff's ROE methodology?**

23   A18: Staff's reliance on dividend growth in the first stage of its DCF model downwardly biases

24   its estimated ROE because it ignores other means by which companies can distribute cash

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[36] Staff Testimony, Exhibit FP-6.

[37] Stocks have no terminal date so the use of 195 years is not reflective of the model. I shall not address this issue as the impact on the results is small.

[38] Staff Testimony, Exhibit FP-6, average and median of column P.

1   to shareholders, such as through share buy-backs. Additionally, as discussed above, Staff's

2   data appears to suffer from data or methodological inconsistencies. In Figure R-3 below, I

3   implement a single-stage DCF model using Staff's dividend growth rate and find an average

4   and median ROE of 9.2% and 9.7%, respectively. The results are 80 to 130 basis points

5   higher than Staff's DCF result of 8.40%, plainly indicating a non-trivial downward bias in

6   Staff's DCF model. I note that neither the results in Figure R-3 nor Staff's DCF results

7   account for the impact of financial leverage. Again, this simple modification results in a

8   DCF result near the Company's requested ROE of 9.5%.

9   **FIGURE R-3: SINGLE-STAGE DCF USING STAFF'S INPUTS**

Company	2021 Dividends per Share	Jan-Mar 2021 Average Price	Dividends per Share Growth Rate	Forward Dividend Yield	Implied Cost of Equity
	[1]	[2]	[3]	[4] = [1] / [2] x (1 + [3])	[5] = [3] + [4]
Allete Inc	$2.52	$65.27	3.7%	4.0%	7.7%
Alliant Energy Corp	$1.61	$49.28	6.4%	3.5%	9.9%
Ameren Corp	$2.20	$74.54	7.4%	3.2%	10.6%
American Electric Power Co. Inc	$3.00	$79.86	5.8%	4.0%	9.7%
Avista Corp	$1.62	$40.74	4.2%	4.1%	8.3%
Black Hills Corp	$2.17	$61.51	6.0%	3.7%	9.7%
CenterPoint Energy Inc	$0.65	$21.06	7.2%	3.3%	10.5%
CMS Energy Corp	$1.74	$57.36	7.3%	3.3%	10.6%
Consolidated Edison Inc	$3.10	$70.02	3.0%	4.6%	7.6%
Dominion Energy	$2.52	$72.24	6.4%	3.7%	10.1%
Duke Energy Corp	$3.90	$91.15	2.2%	4.4%	6.6%
Edison International	$2.58	$58.22	3.8%	4.6%	8.4%
Entergy Corp	$3.86	$93.68	5.6%	4.3%	9.9%
Eversource Energy	$2.40	$84.50	5.7%	3.0%	8.7%
Hawaiian Electric Industries Inc	$1.32	$36.28	2.0%	3.7%	5.7%
IDACORP Inc	$2.72	$91.13	6.6%	3.2%	9.8%
MGE Energy Inc	$1.52	$66.96	5.9%	2.4%	8.3%
NextEra Energy Inc	$1.54	$77.37	9.8%	2.2%	12.0%
NorthWestern Corp.	$2.40	$58.65	3.5%	4.2%	7.7%
OGE Energy Corp	$1.64	$31.19	4.9%	5.5%	10.4%
Pinnacle West Capital Corp	$3.23	$76.06	5.8%	4.5%	10.3%
Portland General Electric Co.	$1.59	$43.28	6.0%	3.9%	9.9%
Sempra Energy	$4.18	$122.31	7.6%	3.7%	11.2%
Southern Co	$2.62	$59.61	2.9%	4.5%	7.4%
WEC Energy Group	$2.71	$87.25	6.1%	3.3%	9.4%
Xcel Energy Inc	$1.72	$62.86	5.7%	2.9%	8.6%
Average			5.4%	3.8%	9.2%
Median			5.8%	3.7%	9.7%

Sources and Notes:

10   [1] - [3]: Staff Exhibit FP-6 p. 1 and 2.

11   Of note, the DCF estimates that result from this simple modification to Staff's model produce

12   an average and median ROE that is slightly below and slightly above the Company's

1   requested ROE, respectively. This demonstrates the reasonableness of Orange and

2   Rockland's request.

3 **Q19: Do you have any comments on Staff's critique of your DCF?**

4 A19: Yes. Staff criticizes my use of earnings growth forecasts.[39]   I prefer earnings growth

5   forecasts as earnings growth is available from multiple sources, so it is possible to use a

6   consensus forecast – which is not the case for dividend growth. Also, as noted above,

7   dividends fail to capture all cash flow that accrue to shareholders.

8 **E. RISK PREMIUM MODEL**

9 **Q20: Does Staff consider the risk premium model when estimating an ROE for Orange and**

10   **Rockland?**

11 A20: No. Staff objects to the Risk Premium Model because the Commission has not relied on the

12   Risk Premium Model in the past; the model reflects "returns which are an inferior alternative

13   to a direct estimate of the company's own cost of equity;" and the method does not account

14   for risk-reducing regulatory mechanisms of New York State that are not used in other

15   jurisdictions.[40] Staff also takes issue with the use of a forecasted risk-free rate in the Risk

16   Premium Model.[41]

17 **Q21: How do you respond?**

18 A21: Investors consider all information that is available to them when making investment

19   decisions, including the allowed ROE and capital structure of other utilities. To attract capital

20   from investors, Orange and Rockland must offer a return that is on equal terms with other

21   utilities with similar risk profiles. The Risk Premium Model measures the premium that

22   investors in other regulated utilities have access to and then the model uses this premium to

23   derive a cost of equity using the forecasted risk-free rates that are expected to prevail over

24   the regulatory period. While the Risk Premium Model does not have the theoretical support

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[39] Staff Testimony, pp. 113-114

[40] Staff Testimony, pp. 127-128.

[41] Ibid., pp. 128-129.

1   that the CAPM and DCF models do, it does provide a direct benchmark for the return

2   available to other regulated electric and natural gas utilities, like Orange and Rockland.

3   Ignoring the results from Risk Premium Model disregards the information available about

4   the returns available to equity owners holding assets with commensurate risks.[42] The Risk

5   Premium model is commonly considered in regulatory proceedings, such as at the FERC,[43]

6   and should be considered when determining Orange and Rockland's ROE. I note that Staff

7   points to FERC Opinion 569-A to argue against the use of my single-stage DCF; however,

8   Staff ignores the fact that Order 569-A re-introduced the Risk Premium as a valid model in

9   FERC proceedings.[44] I note that Staff also ignores the fact that the FERC uses a constant-

10   growth DCF with the constant growth being a blend of 80% IBES analysts' forecasts and

11   20% GDP growth.

12   **Q22: How do you respond to Staff's concern with the use of forecasted risk-free rate in the**

13   **Risk Premium Model?**

14   A22: As discussed in my Direct Testimony, it is important to use a forecasted risk-free rate which

15   reflects the yields that are expected to prevail during the relevant rate period.[45] This is

16   particularly important given the current financial and economic conditions (discussed in

17   Section 5 below). Yields on U.S. Government bond yields are near historic lows due to

18   quantitative easing and other accommodative monetary policies resulting from the COVID-

19   19 pandemic. As economic and financial conditions improve, yields are expected to rise.

20   The June issue of *Blue Chip Economic Indicators* shows yields on 10-year U.S. Government

21   bond to increase to 2.1% in 2022.[46] Similarly, if recent upward trends in inflation persist,

22   there could be further upward pressure on bond yields.[47]

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[42] Bluefield Water Works & Improvement Co. v. Public Service Com'n of West Virginia, 262 U.S. 679 (1923) ("Bluefield"), and Federal Power Com'n v. Hope Natural Gas Co., 320 U.S. 591 (1944) ("Hope").

[43] Federal Energy Regulatory Commission, "Opinion No. 569-A, Order on Rehearing," Docket EL14-12-004 and EL15-45-013, 171¶61,154, May 21, 2020. FERC considers the Risk Premium Model along with the CAPM and DCF Models.

[44] Id. and Staff Testimony, p. 111.

[45] Villadsen Direct Testimony, p. 26.

[46] Wolters Kluwer Blue Chip Economic Indicators, June 2021, pp. 2-3

[47] See Figure R-12.

1   This is particularly important for the Risk Premium Model because the lower the risk-free

2   rate, the higher the risk premium is over the risk-free rate. Therefore, if interest rates are

3   expected to increase, the expectation is that the risk premium over the risk-free rate will

4   decrease. It is important to take these phenomena into account and adjust both the going-

5   forward risk-free rate and risk premium. My implied risk premium model does exactly that.

6   If I were to base the estimate on contemporaneous risk-free rates, the estimated ROE would

7   be downwardly biased (and the risk premium upwardly biased).

8   **Q23: Do you agree with Staff's assertion that the Risk Premium Model is not valid because**

9   **it does not account for New York State specific regulations?**

10   A23: No. I disagree with Staff that the methodology is somehow flawed because different

11   jurisdictions rely on different regulatory mechanisms. According to Regulatory Research

12   Associates, most jurisdictions have regulatory riders, trackers, and alternative rate

13   mechanisms. For example, electric infrastructure adjustment clauses exist in Colorado,

14   Connecticut, Delaware, District of Columbia, Hawaii, Illinois, Indiana, Kentucky,

15   Louisiana, Maryland, Massachusetts, Minnesota, Missouri, New Hampshire, New Jersey,

16   New Mexico, North Dakota, Ohio, Oklahoma, Pennsylvania, South Dakota, Texas, Virginia,

17   and West Virginia. [48] Many jurisdictions have multiple adjustment mechanisms. Therefore,

18   even if the reliance on such mechanisms impacts the ROE it would already be captured in

19   my ROE estimate.

20   **Q24: What are the implications of Staff ignoring the Risk Premium Model?**

21   A24: By ignoring the Risk Premium Model, Staff fails to recognize that investors consider the

22   ROEs and capital structures awarded to other utilities when making investment decisions.

23   The Risk Premium Model measures the premium that investors in other regulated utilities

24   have access to, consistent with the criteria set in *Hope* and *Bluefield.* The Risk Premium

25   Model is used in other regulatory jurisdictions, such as the FERC. If Staff had included a

26   Risk Premium Model for electric utilities and a forecasted risk-free rate of 2.15%, it would

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[48] S&P Market Intelligence, Alternative Regulations Provisions In Place (as of March 31, 2020), accessed June 8, 2021.

1   resulted in an ROE estimate of 9.5%.[49] Therefore, by ignoring the Risk Premium Model,

2   Staff downwardly biases its ROE recommendation of 8.75%.

3   **F. WEIGHTING OF DCF AND CAPM RESULTS**

4   **Q25: What weights does Staff assign to the results from its CAPM and DCF models?**

5   A25: Staff assigns two-thirds weight to the estimate from its DCF model. It then assigns one-third

6   weight to the average of the CAPM and Zero-beta CAPM estimates.

7   **Q26: What comments do you have on this approach?**

8   A26: Staff's weighting of its CAPM and DCF models is mechanical and provides no flexibility to

9   account for impacts of economic and financial conditions on each model. For example, as

10   discussed in my Direct Testimony, the DCF model requires forecasted growth rates that are

11   based on stable economic conditions to satisfy the constant dividend growth assumptions.

12   Growth rate estimates from analysts may be slower than dividend yields to reflect the on-

13   going market uncertainties. As a result, I concluded that the multi-stage estimates may be at

14   or below the low-end of what is reasonable.[50] This is evident when comparing Staff's DCF

15   estimate to recently allowed ROEs for electric distribution utilities. Staff's DCF estimate of

16   8.40% is 90 basis points lower than the average allowed ROE (9.5%) in decisions issued in

17   2020 or 2021.[51] I note not a single utility was awarded a ROE of 8.4% or lower in the normal

18   course of service regulation.[52]

19   By mechanically weighting the DCF by two-thirds and not accounting for current economic

20   and financial conditions, Staff downwardly biases its recommended ROE. For example, had

21   Staff weighted its CAPM / Zero beta CAPM and DCF equally, the ROE would increase by

22   more than 50 basis points. When developing my recommended ROE for Orange and

---

[49] As of September 30, 2020, Villadsen, Exhibit BV-4.

[50] Villadsen Direct Testimony, pp. 60-61.

[51] S&P Market Intelligence, Rate Case History, accessed June 8, 2021.

[52] I exclude electric utilities in Illinois because they operate with a negotiated formulaic ROE. I also exclude Central Maine Power because their 8.25% ROE reflected a 100 basis points downward adjustment for poor service according to S&P Global Intelligence, "Central Maine Power Company: ME: D-2018-00194 | Case Profile."

1   Rockland, I do not mechanically apply Staff's weighting of the CAPM and DCF models.

2   Instead, I consider the impacts of ongoing market uncertainties on each of the models when

3   determining an appropriate ROE.

4   **Q27: Please summarize how Staff's implementation of the CAPM and DCF models**

5   **downwardly biases their ROE estimates.**

6   A27: Staff makes several choices when implementing the CAPM and DCF that downwardly bias

7   their ROE results. Staff does not consider other highly regulated utilities with similar

8   business risks to Orange and Rockland, such as natural gas utilities. For their risk-free rate,

9   Staff uses a historic three-month average of U.S. Government bond yields. Treasury yields

10   are currently near historic lows due to on-going monetary policy actions by the Federal

11   Reserve. Current bond yields also do not accurately reflect yields that are expected to prevail

12   during the relevant regulatory period. In their DCF analysis, Staff utilizes a dividend growth

13   rate, which ignores considerations of other means by which companies distribute cash to

14   shareholders, such as through share buybacks. Staff's DCF model also suffers from data or

15   methodological inconsistencies, which results in ROE values 200 basis points lower than

16   those shown in Value Line. Staff also ignores the Risk Premium Model, which reflects the

17   premium that investors in other regulated utilities have access to. The Risk Premium Model

18   is used in other regulatory jurisdictions, such as at the FERC. Finally, Staff mechanically

19   weights its DCF and CAPM estimates, disregarding how the models and their inputs are

20   impacted by financial and economic conditions.

21   In Figure R-4 below, I summarize the ROE estimates from my adjustment to Staff's CAPM

22   and Zero-Beta CAPM.[53] I also show the results from the Single-Stage DCF and Risk

23   Premium models, discussed above. For illustrative purposes, if I disregard the Multi-Stage

24   DCF and give equal weight to all four remaining models, I arrive at an average ROE of

25   9.44%, which is 69 basis points above Staff's recommended ROE of 8.75% and in line with

26   the Company's requested ROE of 9.5%. I note that it is evident that the Multi-Stage DCF is

27   not in line with any of the other models estimates and the two-third weighting on the Multi-

28   Stage DCF downwardly biases the results.

---

[53] See Figure R-2 above.

1   **FIGURE R-4: SUMMARY OF STAFF'S ADJUSTED CAPM RESULTS AND ADDITIONAL MODELS**

		Weight	ROE
CAPM (Adj)	[A]	0.250	9.42%
Zero-Beta CAPM (Adj)	[B]	0.250	9.65%
Single-Stage DCF	[C]	0.250	9.19%
Risk Premium	[D]	0.250	9.49%
Average ROE	**[E]**		**9.44%**

Note: Does not reflect adjustment for financial leverage
[A], [B]: Figure R-2
[C]: Figure R-3
[D]: Villadsen Exhibit BV-4, Schedule BV-16
[E]: Simple Averages of [A], [B], [C], [D]

3   Even after considering the above, Staff's ROE results are further downwardly biased due to

4   its failure to make standard adjustments for financial leverage. I discuss this in further detail

5   in Section 4 below.

6   **G. FLOTATION COSTS**

7   **Q28: Please address the issue of flotation costs for Orange and Rockland.**

8   A28: Staff does not recommend an adjustment for flotation costs at this time because the Company

9   has not indicated whether it would issue equity (via CEI) during the Rate Year.[54] Staff

10   acknowledges my estimated adjustment for flotation costs of 20 basis points.[55] I maintain

11   my position that it is important for the utility to recover costs associated with the issuance

12   of equity and as noted in my Direct Testimony, the specified calculation I presented was one

13   potential method.

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[54] Staff Testimony, p. 133.

[55] Ibid, p. 132.

1   **4.   FINANCIAL LEVERAGE ADJUSTMENTS**

2   **A.   PRELIMINARIES**

3   **Q29: What do you cover in this section of your rebuttal testimony?**

4   A29: I respond to the critiques and misunderstandings of my Direct Testimony regarding financial

5   leverage. Specifically, I address the concerns of Staff regarding the use of the market value

6   capital structure rather than book value capital structures in my adjustments, given the

7   differences in capitalization between utility holding companies and utility subsidiaries. [56] I

8   also address Staff's assertion that the sample company has comparable levels of financial

9   risk and therefore standard adjustments for financial leverage should not be used.[57] Finally,

10   I assess the impacts on Staff's CAPM and DCF estimates for not taking the impact of capital

11   structure into account in their recommended ROEs.

12   **Q30: How do you respond to Staff's concerns regarding market value capital structure?**

13   A30: Staff comments are based on a misunderstanding of the application of the ROE. Both the

14   CAPM and DCF models rely on market data to estimate the cost of equity for sample

15   companies, so the results reflect the value of the capital that investors hold during the

16   estimation period (market values). The allowed ROE is applied to rate base, which is

17   determined using the historical cost and hence reflects the net book value of assets at the

18   utility operating company. The strict application of a cost of equity that is estimated from

19   market value and hence is based on market value capital structures to a book value capital

20   structure leads to a mismatch between the two. To my knowledge there is no dispute that

21   the rate base is and should be determined using book values. I therefore make clear that the

22   rate base is measured using book values, and that nothing about my analysis of financial risk

23   involves the application of the allowed return to a market value rate base.

24   Taking differences in financial leverage into consideration does not change the value of rate

25   base and consequently does not depart from original cost ratemaking principles. Adjustment

---

[56] Staff Testimony, pp. 115-118.

[57] Ibid., p. 120.

1   for differences in leverage *does* consider the fact that the more debt a company has, the

2   higher the financial risk associated with an equity investment in that company (as

3   acknowledged by Staff).[58]

4   Q31: Do you agree with Staff's assertion that standard financial leverage adjustments are

5   not needed due to the comparable level of financial risk?

6   A31: I disagree. Staff points to the average book value common equity ratio of my proxy samples

7   (46.4%-50.9%) and compares it to Orange and Rockland's book value common equity ratio

8   (45.9%).[59] With this information Staff argues that the proxy companies and Orange and

9   Rockland's have "comparable levels of financial risk" and therefore it is reasonable to just

10   consider unadjusted CAPM and DCF results.[60] Staff's argument is not based on financial

11   theory. I am not aware of any level of "comparable" financial risk whereby differences in

12   leverage can be simply ignored. As discussed further below, adjustments for financial

13   leverage are standard financial techniques, regardless of the relative differences in capital

14   structure (let alone on a book value basis).

15   **B. FINANCIAL ECONOMICS**

16   Q32: How should capital structure be taken into account so that the allowed returns meet

17   the fair return standard?

18   A32: The proportion of debt in the capital structure—also known as financial leverage—

19   influences the risk borne by equity investors. For a given degree of business risk, a higher

20   proportion of debt financing increases the expected variability of equity returns. Thus, to

21   compare the fair returns of two otherwise identical firms, on a risk adjusted basis, the capital

22   structures must be taken into account. For example, if more debt is used, the greater financial

23   risk imposed by the greater financial leverage must be compensated by a commensurately

24   higher expected ROE. Otherwise, the more leveraged firm will not receive a fair return and

25   will be at a disadvantage in the competition to attract capital in equity markets.

---

[58] Ibid., p. 118.

[59] Ibid., p. 120.

[60] Id.

1 **Q33: Please briefly explain the relationship between leverage and the cost of equity.**

2 A33: Financial risk or capital structure is a large topic in financial economics. The principle that

3 financial leverage amplifies the variability of equity returns and thereby increases the

4 financial risk to equity investors is a firmly established core principle of corporate finance.

5 It is directly connected to the Modigliani Miller proposition that, except as influenced by the

6 tax-deductibility of debt and the cost of financial distress, the value of a firm's assets is

7 independent of its choice of financing. This intuitive framework means that some measures

8 of the overall cost of capital for firms with comparable systematic business risk should be

9 the same regardless of capital structure,[61] even if the cost of the equity and/or debt

10 components of financing vary in proportion to the degree of financial leverage.

11 It is commonly recognized in finance textbooks that financial leverage impacts the cost of

12 equity for a company. A replication from a standard MBA textbook is provided below:[62]

13

COMMON MISTAKE   Is Debt Better Than Equity?

Because debt has a lower cost of capital than equity, a common mistake is to assume that a firm can reduce its overall WACC by increasing the amount of debt financing. If this strategy works, shouldn't a firm take on as much debt as possible, at least as long as the debt is not risky?

This argument ignores the fact that even if the debt is risk free and the firm will not default, adding leverage increases the risk of the equity. Given the increase in risk, equity holders will demand a higher risk premium and, therefore, a higher expected return. The increase in the cost of equity exactly offsets the benefit of a greater reliance on the cheaper debt capital, so that the firm's overall cost of capital remains unchanged.

14 As Professors Berk and DeMarzo further note:

15 The levered equity return equals the unlevered equity return, plus an extra
16 "kick" due to leverage…The amount of additional risk depends on the
17 amount of leverage, measured by the firm's **market value debt-equity**
18 **ratio**, D/E…[63] (emphasis added)

19 This relationship is further illustrated in Figure R-5 below, reproduced from the seminal

20 textbook *Principles of Corporate Finance* by Brealey, Myers, and Allen. It illustrates that as

21 capital structure shifts to use a greater proportion of lower cost debt financing, the investor

---

61 Except in cases of extremely high or low leverage, where the tax and financial distress effects may dominate.

62 Jonathan Berk and Peter DeMarzo, "Corporate Finance," Third Edition, 2013 (Berk & DeMarzo 2013), p. 492.

63 Berk & Peter DeMarzo 2013, p. 489. Similar comments appear in Richard A. Brealey, Stewart C. Myers, and Franklin Allen, 2014, Principles of Corporate Finance, 11th edition, McGraw-Hill Irwin (Brealey, Myers & Allen 2014), p. 433.

1   required ROE (and debt, especially at higher leverage ratios) increases to compensate for the

2   greater financial risk, such that the overall required return on assets remain unchanged.

3   **FIGURE R-5: ILLUSTRATION OF THE MODIGLIANI MILLER PRINCIPLE[64]**
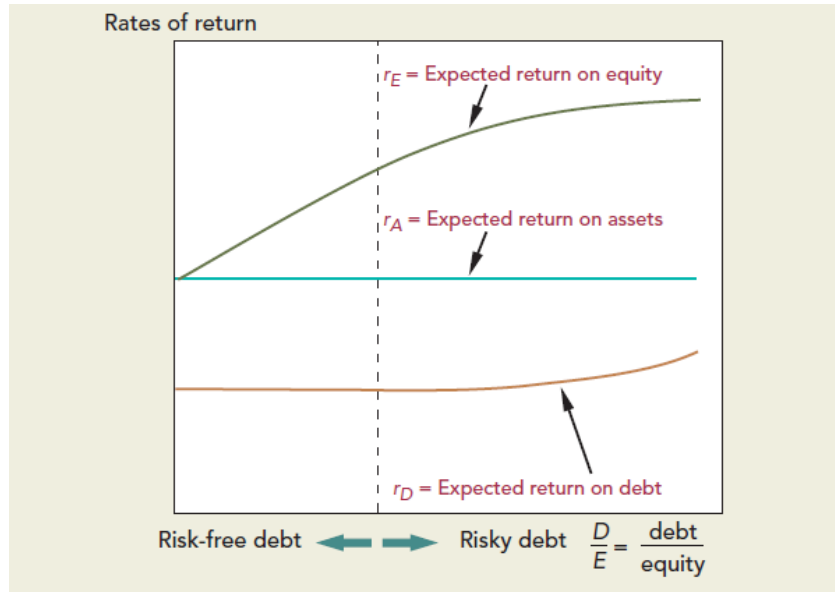
4

5   Financial economics simply do not leave any doubt that the cost of equity increases with

6   financial leverage and that the relevant measure of financial leverage depends on <u>market</u>

7   <u>value</u>. I—like other witnesses—estimate the cost of equity using market data in the CAPM

8   and DCF-based models. Since the Risk Premium Model is based on book values, the relevant

9   leverage for this methodology is book value based.
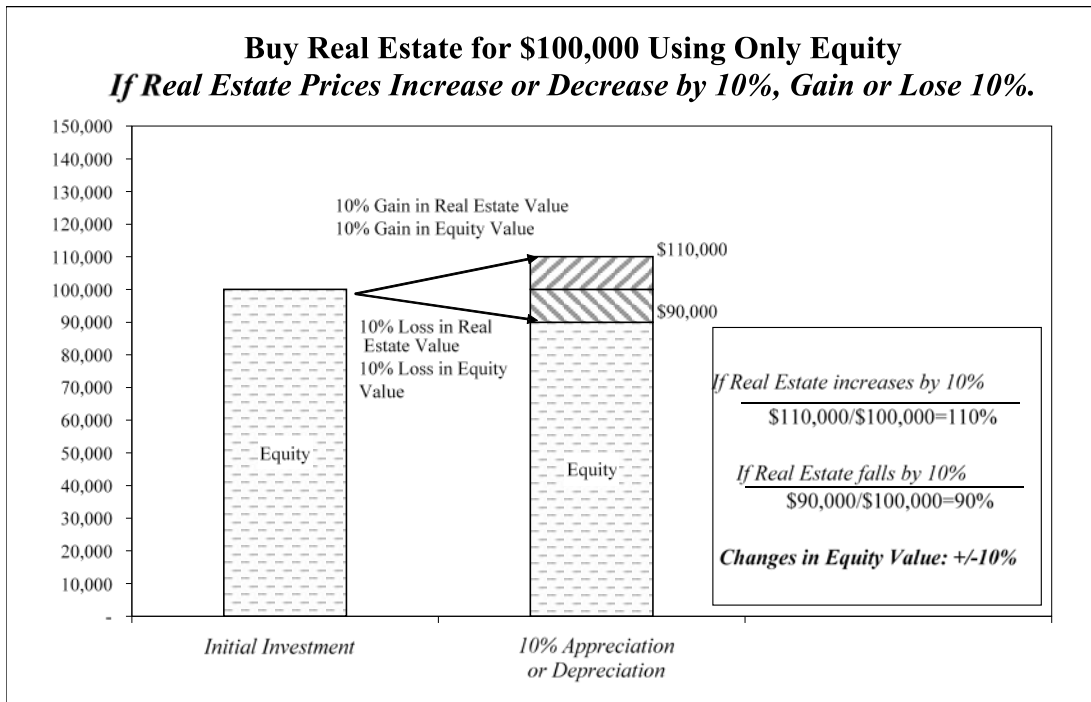
10   **Q34: Could you provide a numerical example to illustrate the impact of financial leverage**
11   **on cost of equity?**

12   A34: Yes. As a simple example, think of an investor who takes money out of her savings and

13   invests $100,000 in real estate. The future value of the real estate is uncertain. If the real

14   estate market booms, she will realize a gain. However, if the real estate market declines, she

15   will realize a loss. Figure R-6 below provides an illustration of this:

---

64   Brealey, Myers, and Allen, Principles of Corporate Finance, 10th Ed. (2011), p. 429, Figure 17.2.

1   **FIGURE R-6: RETURN ON AN ALL EQUITY INVESTMENT**

Buy Real Estate for $100,000 Using Only Equity
*If Real Estate Prices Increase or Decrease by 10%, Gain or Lose 10%.*

2

3   Compare this to the situation illustrated in Figure R-7 below, where the investor finances the

4   same real estate purchase using 50% cash from her savings (equity) and finances 50% using

5   funds from a mortgage (debt). In this case, the variability in the investor's expected equity

6   return is two-times greater than in Figure R-6. The entire fluctuation of 10% from rising or

7   falling real estate prices falls on the investor's equity investment, which is smaller ($50,000)

8   for the leveraged investment depicted in Figure R-7 as compared to the all-equity $100,000

9   investment shown in Figure R-6. The equity return for the leveraged investment goes up or

10   down by 20% in the leverage scenario even though the actual change in the value of the real

11   estate (+/- 10%) is the same as depicted in Figure R-6 for the all-equity investment. The

12   lesson from this example is obvious: debt adds risk because, while there is more potential

13   gain on the equity investment by using debt, there is a higher potential loss on that equity

14   investment that goes with it. This concept is colloquially referred to as "high risk, high

15   reward."

1   **FIGURE R-7: RETURN ON A LEVERAGED EQUITY INVESTMENT**
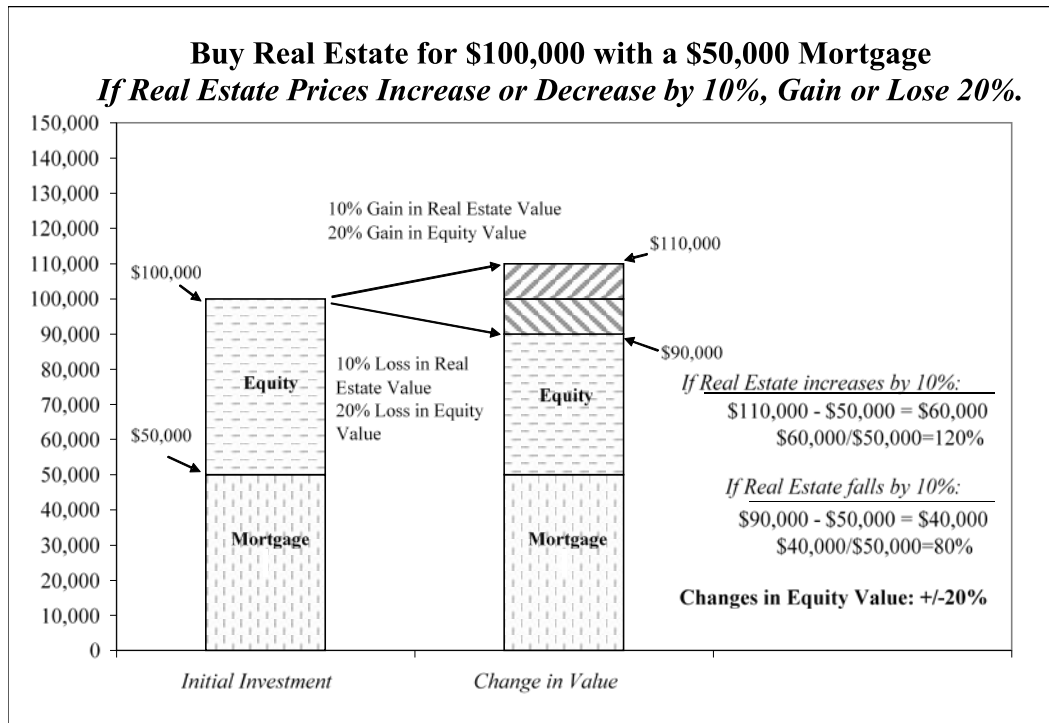
2

3   **Q35: Do finance textbooks also address the question of how financial leverage affects the**
4   **cost of equity?**

5   A35: Yes. Standard textbooks on corporate finance provide examples, like the one I presented

6   above, to illustrate how the introduction of debt financing amplifies the variability of equity

7   returns and thus increasing the risk to equity holders which causes them to demand higher

8   expected returns. For example, Professors Brealey, Myers, and Allen write:

9   Our example shows how borrowing creates financial leverage or gearing.
10   Financial leverage does not affect the risk or the expected return on the
11   firm's assets, but it does push up the risk of the common stock. Shareholders
12   demand a correspondingly higher return because of this *financial risk*.[65]

13   Similarly, Professors Berk and DeMarzo summarize the effect of leverage on the cost of

14   capital as follows.

15   …[L]everage increases the risk of equity even when there is no risk that the
16   firm will default. Thus, while debt may be cheaper when considered on its
17   own, it raises the cost of capital for equity. Considering both sources of

---

[65]   Brealey, Myers and Allen (2017), *Principles of Corporate Finance, 12th Edition*, p. 446 (emphasis in original).

1   capital together, the firm's average cost of capital with leverage is … the

2   same as for the unlevered firm.[66]

3   These statements by preeminent finance scholars in widely-used corporate finance textbooks

4   highlight two important points that can also be intuitively observed based on the real estate

5   investment example:

6   • The variability of returns on the asset itself (e.g., the piece of real estate) is unchanged

7   by the introduction of financial leverage, therefore "leverage does not affect the risk

8   or the expected return on the firm's assets." Rather, it is the risk and required returns

9   of the equity and debt financing instruments that are changed by the degree of

10   financial leverage.

11   • The mechanism by which leverage adds variability to returns is independent of any

12   effect of increased leverage on the risk that the firm will be unable to fulfill its fixed

13   financial obligations, and thus (as Berk and DeMarzo put it) "leverage increases the

14   risk of equity even when there is no risk that the firm will default."

15   **Q36: What are the implications of these fundamental financial principals for Staff's CAPM**

16   **results?**

17   A36: Failing to recognize the impact of financial leverage on the cost of equity results in a non-

18   trivial downward bias in Staff's ROE estimates. This is shown in Figure R-8 below by

19   comparing the Value Line betas obtained at Staff's proxy group's market value and the same

20   beta measured at the Company's requested 50% equity capital structure. To do so, I first

21   calculate the asset (or zero debt financing) beta using the market value capital structure of

22   Staff's proxy group. Next, I calculate a re-levered beta using the 50% equity capital structure

23   requested by the Company. It is evident that the betas used by Staff downwardly bias the

24   CAPM estimates by 90 to 120 basis points.

---

[66]   Berk and DeMarzo (2014), *Corporate Finance, 3rd Ed.*, p. 482 (emphasis in original).

1   **FIGURE R-8: ILLUSTRATIVE IMPACT OF LEVERAGE ADJUSTMENT TO STAFF'S CAPM**

Recommendations	Staff'S Sample Average Beta	Assumed Debt Beta	Market Equity	Asset Beta	Recommended Debt%	Equity Beta	ROE (Original vs. Hamada Adj.)	Increase in ROE
	[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]
Traditional CAPM	0.88	0.05	60%	0.61	50.0%	1.02	9.3% - 10.5%	1.2%
Zero Beta CAPM	0.88	0.05	60%	0.61	50.0%	1.02	9.6% - 10.5%	0.9%

Sources and Notes:

[1]: Staff Finance Panel May 2021, Cases 21-G-0073 & 21-E-0074.

[2]: Corporate Finance, Berk and Demarzo, 3rd Edition, p. 413.

[3]: Exhibit_(FP-5) Page 2.

[4] Unlevered Asset Beta with Tax.

[5] Assumed.

[6] Beta relevered to recommended equity percentage using Hamada formula with tax.

[7] Original Cost of Equity as presented in Staff work product and ROE with Hamada adjustments

2   Zero Beta CAPM = $Rf + (.75 \times Beta \times MRP) + (.25 \times MRP)$.

3   **Q37: What are the implications for Staff's DCF estimates?**

4   A37: The impact on the DCF results is similar, which are shown in Figure R-9 below. I hold

5   Staff's DCF implied After-Tax Weighted Average Cost of Capital of 6.4% constant and then

6   adjust the capital structure to the Company's requested 50% equity capital structure.

7   **FIGURE R-9: ILLUSTRATIVE IMPACT OF LEVERAGE ADJUSTMENT TO STAFF'S DCF**

Staff Sample Average Market Value Equity Ratio	[a]	59.9%
Staff Recommended ROE	[b]	8.40%
Staff Recommended Cost of Debt	[c]	4.60%
Combined State and Corporate Tax Rate	[d]	26.1%
After-Tax Weighted Average Cost of Capital	[e]	6.4%
Implied ROE at 50% Equity	**[f]**	**9.4%**

Sources and Notes:

[a]: From Bloomberg as of March 12, 2021

[b]: Staff Exhibit FP-6 p. 3.

[c]: Staff Testimony p. 10.

[e] = [b] x [a] + [c] x (1 - [a]) x (1 - [d])

8   [f] = ([e] - [c] x (50%) x (1 - [d]) / 50%

9   The downward bias due to no consideration of financial leverage is even larger for Staff's

10   DCF model than for Staff's CAPM models. The estimate is downwardly biased by 100 basis

11   points (9.4% minus 8.4%).

1 **Q38: What do you conclude from the discussion above?**

2 A38: I conclude that Staff's ROE estimates are downwardly biased because they fail to account

3   for the impact of financial leverage on the cost of equity, using standard financial techniques.

4 **C. PRECEDENTS**

5 **Q39: Are adjustments for financial leverage used by other regulatory agencies?**

6 A39: Yes. Multiple regulatory agencies in the U.S. and most outside of North America have

7   adopted a similar approach. In the U.S., the Federal Communications Commission ("FCC"),

8   the Surface Transportation Board ("STB") and the FERC have accepted the use of weighted-

9   average cost of capital methodologies to determine the cost of capital. Specifically, the FCC

10   in a 2016 order acknowledged that it is reasonable (1) to use market values to estimate the

11   capital structure and (2) derive an implied return on equity from the estimated weighted

12   average cost of capital.[67] Thus, the FCC acknowledged that market value capital structures

13   are the relevant measure of leverage and impact the ROE using an approach similar to what

14   I used. The FERC, in Cost of New Entry ("CONE") studies for the PJM,[68] has used the

15   weighted average cost of capital and the Surface Transportation Board calculates the

16   weighted average cost of capital to assess the revenue adequacy for freight railroads.[69]

17   Finally, the Alabama Public Service Commission has found the method "compelling":

18   [t]he Commission recognizes that the [after tax weighted average cost of
19   capital] analysis is not a prevalent methodology in the United States;
20   however, the focus of that methodology on the relationship between the
21   market value and the associated financial risk of the utility is compelling.[70]

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[67] Federal Communications Commission, "Report and Order, Order and Order on Reconsideration, and Further Notice of Proposed Rulemaking," FCC 16-33, issued March 30, 2016 ¶270 and ¶ 322.

[68] Federal Energy Regulatory Commission, "Order Conditionally Accepting Tariff Revisions Subject to Compliance Filing," Docket ER14-2940-000, November 28, 2014, ¶59. See also, Federal Energy Regulatory Commission, "Order Accepting Proposed Tariff Revisions," Docket ER19-105-001 and ER19-105-002, April 15, 2019.

[69] See, for example, Surface Transportation Board, "Docket No. EP 558 (Sub-No. 22), dated August 5, 2019, p. 15.

[70] Report and Order, In re: Public Proceedings established to consider any necessary modifications to the Rate Stabilization and Equalization mechanism applicable to the electric service of Alabama Power Company, Dockets 18117 and 18416, August 21, 2013, p. 20.

1   Considering next the Hamada approach, I note that the California Public Utilities

2   Commission in the past has relied on results from the method,[71] the Oregon Public Service

3   Commission staff commonly relies on a version of the Hamada method to assess the impact

4   of leverage on the cost of equity,[72] and the Florida Public Service Commission uses an

5   equivalent methodology to determine the ROE for small water utilities.[73]

6   Looking outside the U.S., Mexico's *Comisión Reguladora de Energía*[74] relies on the Hamada

7   method, while regulators in the U.K., the Netherlands, Australia, and New Zealand rely on a

8   mixture of an after-tax weighted average cost of capital and the Hamada method.[75]

9   **Q40: Are the methods unorthodox in utility regulation?**

10   A40: No. While not all methods I rely upon are widely used by regulatory commissions, several

11   regulatory entities have found the methods used in financial economics to consider leverage

12   useful. Several of the adoptions are relatively new in that the FERC (for CONE studies) and

13   the FCC only adopted the leverage adjustment within the last five years. Thus, these

14   jurisdictions have moved towards accepting the importance of leverage. The methods are

15   also standard curriculum in finance textbooks and commonly used by practitioners who

16   provide cost of capital measures.[76]

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[71] The California Public Utilities Commission ("CPUC") relied on Hamada unlevered / relevered data in D.12-12-034 at. 38. Here the CPUC pointed to Southern California Edison's CAPM results and ROE range of 9.73 percent to 11.71 percent, which was derived using the Hamada method.

[72] Opening Testimony of Matt Muldoon in Docket No. UE 319, Staff Exhibit 500, p. 15.

[73] Florida PUC for water and wastewater utilities (Order No. PSC-12-0339-PAA-WS); "Florida 2012 Order"), p. 4.

[74] CRE, "Directiva sobre la determinación de tarifas y el traslado de precios para las actividades reguladas en materia de gas natural DIR-GAS-001-2207."

[75] Villadsen, Bente et. al, "*Risk and Return for Regulated Industries*," Academic Press, 2017, Chapter 9 and references herein.

[76] For an example of a commercial data provider's application, see Duff & Phelps, "2019 Valuation Handbook – U.S. Guide to Cost of Capital," Chapter 1 pp. 1-21 For examples of tax authorities applications, see, for example, Utah Rule R884-24P-62 "Valuation of State Assessed Unitary Properties Pursuant to Utah Code Ann. Section 59-2-201", which states "The discount rate (k) shall be based upon a weighted average cost of capital (WACC) considering current market debt rates and equity yields." (https://rules.utah.gov/publicat/code/r884/r884-24p.htm#T32).

I understand it is common for taxes based on net present values to use a market value based after-tax weighted-average cost of capital as the discount rate.

1 **Q41: Does the fact that you have not addressed all criticisms of your testimony mean that**
2 **you agree with those criticisms?**

3 A41: No.

4 **5. CAPITAL MARKETS UPDATE**

5 **Q42: What has changed since you filed your Direct Testimony?**

6 A42: Since filing my Direct Testimony, long standing economic uncertainties weighted on capital
7 markets have subsided somewhat. Vaccines are now being widely distributed across the U.S.
8 and portions of the economy are beginning to fully reopen as social distancing measures are
9 relaxed.[77] According to the U.S. Bureau of Economic Analysis, real GDP grew by 6.4% in
10 the first quarter of 2021.[78]

11 Since January 2021, several government assistance programs were passed, which intended
12 to stimulate the U.S. economy. In early March, the Government passed a $1.9 trillion
13 American Rescue Plan which provided direct economic impact payments and extended
14 unemployment benefits.[79] Other programs, such as the Paycheck Protection Program
15 continued to disburse aid to businesses. This infusion of cash into the economy has created
16 concerns about inflation. The Consumer Price Index ("CPI"), a common measure of
17 inflation, increased by 4.2% from April 2020 to April 2021 – the largest 12-month increase
18 since September 2008.[80] Rising inflation is introducing new uncertainties to the financial
19 markets and increasing the return required by investors to hold risky assets. Specifically,
20 because the allowed ROE is a nominal return, an increase in inflation would result in a
21 reduction in the value of any allowed ROE. Thus, with the risk of inflation increasing, there

[77] I note that there are still concerns more globally about vaccine distribution and the spread of novel variants of the COVID-19 virus.

[78] U.S. Bureau of Economic Analysis, "Gross Domestic Product, First Quarter 2021," April 29, 2021, accessed May 24, 2021, https://www.bea.gov/news/blog/2021-04-29/gross-domestic-product-first-quarter-2021

[79] Alan Fram, "Congress Oks $1.9T virus relief bill in win for Biden, Dems," Associated Press, March 11, 2021, accessed May 24, 2021, https://apnews.com/article/joe-biden-bills-legislation-coronavirus-pandemic-7eb383e58c8fcf50f6f586b6d5cfc523

[80] U.S. Bureau of Labor Statistics, "Consumer Price Index up 4.2% from April 2020 to April 2021," May 19, 2021, accessed May 24, 2021, https://www.bls.gov/opub/ted/2021/consumer-price-index-up-4-2-percent-from-april-2020-to-april-2021.htm.

1   is an increased risk that the allowed ROE will be downward biased within a relatively short

2   time; e.g., a year.

3   **Q43: How have recent global events impacted capital markets and the economy?**

4   A43: Over the past several months, vaccines have become widely accessible throughout the U.S.,

5   which has allowed portions of the economy to fully re-open. At the same time, concerns

6   about global vaccine distribution, COVID-19 variants, and inflation are presenting new

7   financial and economic uncertainties. As a result, the premium that investors require to hold

8   risky assets remains elevated, especially when measured on forward-looking methodologies

9   that estimate expected market returns. The VIX, which measures near-term volatility in the

10   market, reached an all-time high of 82.69 in March 2020 at the height of the pandemic.

11   However, the VIX has recently retreated to its long-term average or slightly below--between

12   16.25 and 37.21--with the highest level seen on January 27, 2021.[81]

13   **FIGURE R- 10: VIX**

Source: Bloomberg as of 4/30/2021
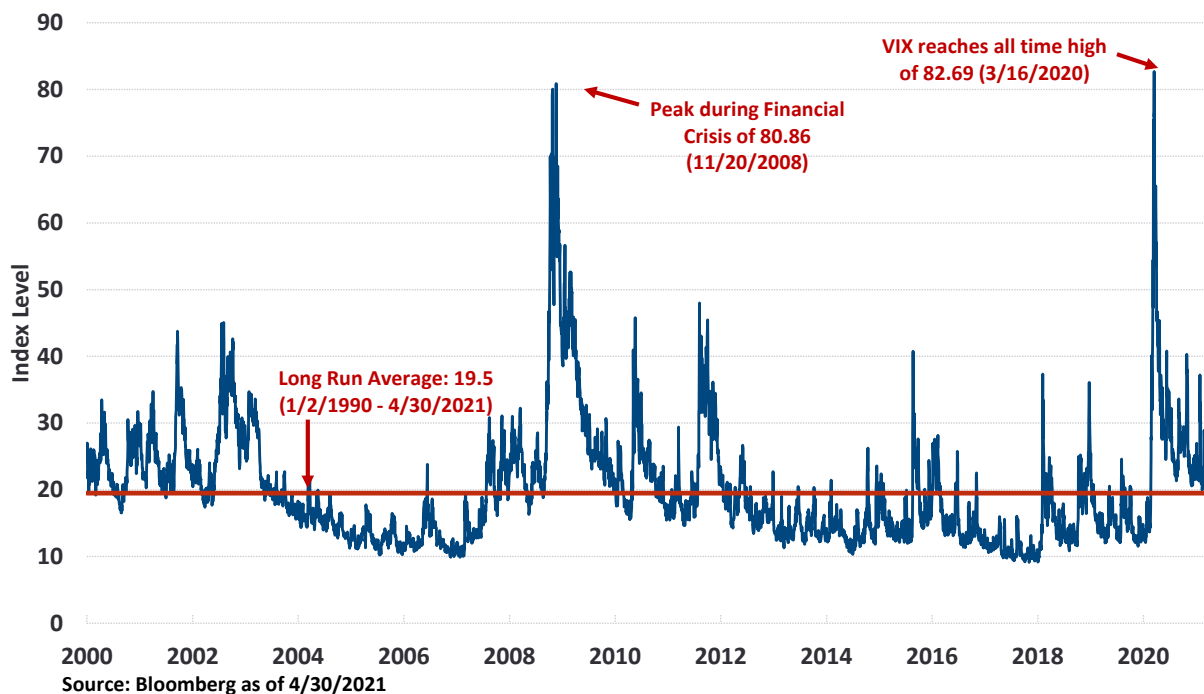
14

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[81] Bloomberg accessed May 24, 2021 and Cboe VIX, accessed May 24, 2021,
https://www.cboe.com/tradable_products/vix/vix_historical_data/

1   Other measures of investor risk, such as Bloomberg's forward looking MRP remains
2   elevated relative to pre-pandemic levels. Bloomberg's estimate of the MRP for the U.S.
3   increased to 8.95% as of the end of April, which is the highest level since March 2020. At
4   the time of my Direct Testimony, Bloomberg's MRP was 7.85%.[82] Bloomberg's MRP
5   estimate remains elevated relative to pre-pandemic levels, even as 10-Year U.S. Treasury
6   yields increase (see Figure R-11 below). The lingering uncertainty in the market is further
7   evidenced by the MRP measured using FERC's methodology, which has increased to
8   11.17% as of April 30, 2021.

9   **FIGURE R-11: BLOOMBERG'S DAILY MARKET EQUITY RISK PREMIUM AND RISK FREE RATE**

10
11   Source: Bloomberg accessed May 24, 2021, data through April 30, 2021.

12   Yields on U.S. Government bonds remain near historic lows despite improvements since the
13   historic low levels in 2020. (see Figure R-13 below). Yields on 10-year U.S. Treasury bonds
14   are currently at 1.63%.[83] At the time of my Direct Testimony, yields were on 10-year U.S.

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[82] Bloomberg MRP estimates are measured relative to a 10-Year U.S. Treasury bond yield.

[83] U.S. Department of Treasury, Daily Treasury Yield Curve Rates, accessed May 24, 2021, data as of May 21, 2021. https://www.treasury.gov/resource-center/data-chart-center/interest-rates/Pages/TextView.aspx?data=yield

1   Treasury bonds were at 0.96%.[84] Accomodative monetary policy, such as the Federal

2   Reserve's quantitative easing program, continues to put downward pressure on interest rates

3   to support the financial markets and stimulate the economy.[85]

4   In the past year, several measures have been passed to provide direct aid to households and

5   businesses across the U.S. This infusion of cash into the economy and the initial re-opening

6   of the economy has led to a substantial increase in inflation over a relatively short period of

7   time. Since the time of my Direct Testimony, the CPI increased from 0.3(January 2021) to

8   0.8 (April 2021).[86] As noted previously, the CPI has increased 4.2% in the past 12 months –

9   the largest 12 month increase since 2008.[87] As shown in Figure R-12 below, the CPI is

10   currently higher than at any time in the past 10 years. If rising inflation trends persist, utilities

11   will face increasing cost recovery risks to the extent that actual costs exceed those measured

12   by a utility during its test period.

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[84] Villadsen Direct Testimony, p. 4.

[85] U.S. Federal Reserve, "Federal Reserve Press Release," April 28, 2021,
https://www.federalreserve.gov/monetarypolicy/files/monetary20210428a1.pdf

[86] U.S. Bureau of Labor Statistics, CPI for All Urban Consumers 1 Month Change, Series ID CUSR0000SA0,
accessed May 24, 2021, https://data.bls.gov/timeseries/CUSR0000SA0&output_view=pct_1mth

[87] U.S. Bureau of Labor Statistics, "Consumer Price Index up 4.2% from April 2020 to April 2021," May 19, 2021,
accessed May 24, 2021, https://www.bls.gov/opub/ted/2021/consumer-price-index-up-4-2-percent-from-april-2020-
to-april-2021.htm.

1   **FIGURE R-12: CONSUMER PRICE INDEX (ALL URBAN CONSUMERS)**
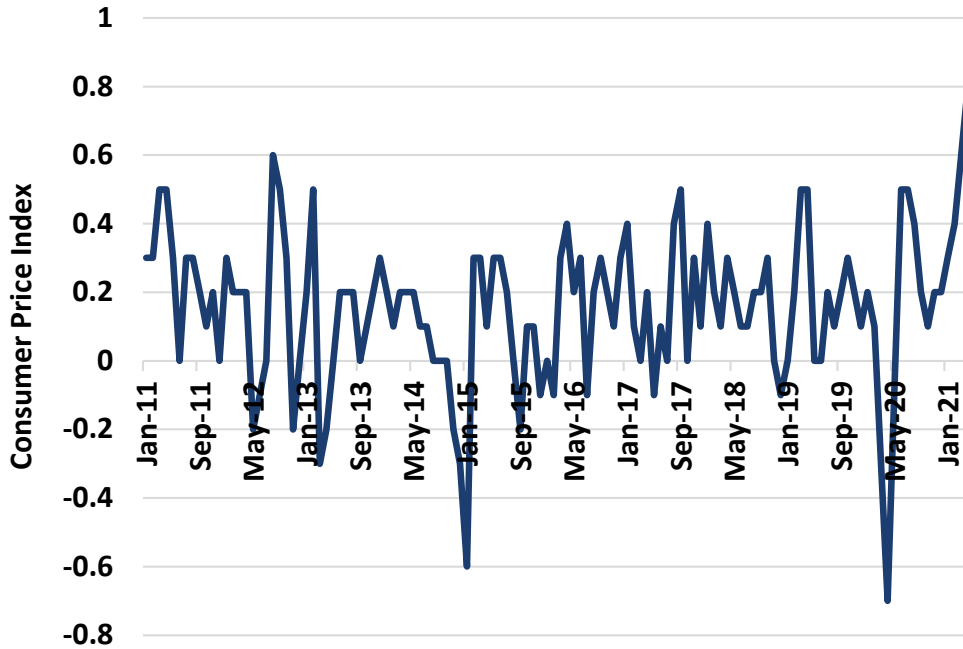
2

3   **Q44: What are the expectations going forward?**

4   A44: The impact on the economy and unemployment will depend on how long the economy

5   remains partially shut down, but the economy is expected to continue to recover in mid-2021

6   based on recent forecasts. Recent surveys by economists, such as *Blue Chip Economic*

7   *Indicators* survey, indicate that U.S. real GDP will increase by 6.7% in 2021 and 4.4% in

8   2022 for a nominal GDP growth of about 9.7% and 6.8%, respectively.[88] In August 2020,

9   the Federal Reserve announced a policy change whereby they would target inflation of 2%

10   on average, noting that the Federal Reserve would hold overnight borrowing interest rates

11   lower for longer.[89] Recent projections from the FOMC clarified that policy rates will remain

12   at current levels through at least 2023[90] and will continue its quantitative easing programs

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[88] Wolters Kluwer Blue Chip Economic Indicators, June 2021, pp. 2-3.

[89] U.S. Federal Reserve, "Federal Open Market Committee announces approval of updates to its Statement on Longer-Run Goals and Monetary Policy Strategy," August 27, 2020, accessed March 2, 2021, https://www.federalreserve.gov/newsevents/pressreleases/monetary20200827a.htm.

[90] U.S. Federal Reserve, "March 17, 2021: FOMC Projections materials, accessible version," March 17, 2020, https://www.federalreserve.gov/monetarypolicy/fomcprojtabl20210317.htm.

1   until economic conditions improve.[91] This will likely continue to exert downward pressure

2   on interest rates over the near to medium term. *Blue Chip Economic Indicators* forecasts 10-

3   year U.S. Government bond yields to average 1.7% in 2021 and 2.1% in 2022 (see Figure

4   R-13 below).[92]

5   **FIGURE R-13: HISTORICAL AND PROJECTED 10-YEAR TREASURY BOND YIELDS**
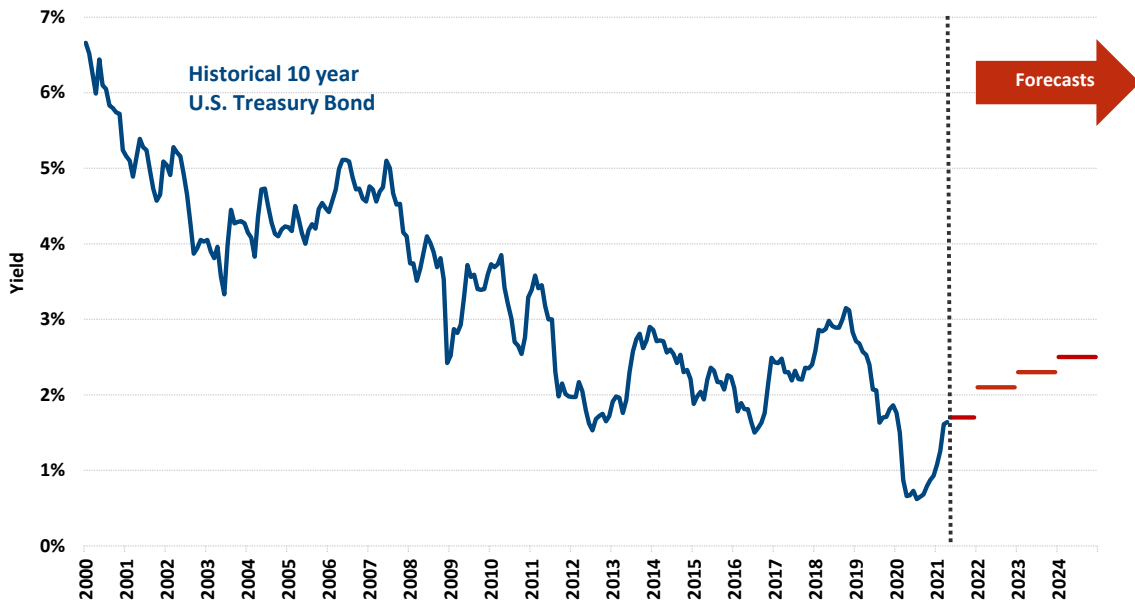
6
7   Source: Historic data from Bloomberg accessed May 24, 2021, data through April 30, 2021;
8   Forecasts from Blue Chip Economic Indicators March 2021 and June 2021.

9   **Q45: How does this affect the cost of equity estimation for Orange and Rockland?**

10   A45: As stated in my Direct Testimony, the cost of equity and capital structure set forth in this

11   proceeding are expected to be in effect beyond the current extraordinary impacts of the

12   COVID-19 pandemic. Consequently, the analysis and recommendations should reflect

13   expected market conditions that will prevail over the relevant rate period and not exclusively

14   current market conidtions. As discussed above, many of the inputs to the cost of equity

15   estimation methodologies currently remain at unprecedented levels. Relying only on current

16   economic and financial conditions to estimate Orange and Rockland' cost of equity would

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[91] U.S. Federal Reserve, "Federal Reserve Press Release," April 28, 2021,
https://www.federalreserve.gov/monetarypolicy/files/monetary20210428a1.pdf

[92] Wolters Kluwer Blue Chip Economic Indicators, June 2021, pp. 2-3.

1   unfairly lock Orange and Rockland and their customers into the current economic and

2   financial environment and would not provide a fair return. The current financial and

3   economic conditions continue to create an exorbinante amount of uncertainty about the

4   future.

5   **Q46: Does this conclude your Rebuttal Testimony?**

6   A46: Yes, it does.

Full Sample

Estimated Growth Rates of the Full Sample

| Company | Thomson Reuters IBES Estimate | | Value Line | | | |
	Long-Term Growth Rate	Number of Estimates	EPS Year 2020 Estimate	EPS Year 2023-2025 Estimate	Annualized Growth Rate	Combined Growth Rate
	[1]	[2]	[3]	[4]	[5]	[6]
ALLETE	7.0%	1	3.10	4.25	8.2%	7.6%
Alliant Energy	5.5%	2	2.45	3.00	5.2%	5.4%
Amer. Elec. Power	5.4%	2	4.25	5.50	6.7%	5.8%
Ameren Corp.	6.0%	2	3.50	4.50	6.5%	6.2%
Atmos Energy	7.3%	2	4.70	6.00	6.3%	6.9%
Avista Corp.	5.8%	1	1.85	2.50	7.8%	6.8%
Black Hills	4.7%	1	3.55	4.25	4.6%	4.6%
Chesapeake Utilities	4.7%	1	3.90	5.50	9.0%	6.9%
CMS Energy Corp.	7.1%	2	2.60	3.50	7.7%	7.3%
Consol. Edison	2.5%	3	3.95	5.00	6.1%	3.4%
Dominion Energy	2.7%	3	3.05	4.25	8.6%	4.2%
DTE Energy	5.9%	4	6.70	8.50	6.1%	6.0%
Edison Int'l	1.2%	2	1.25	5.25	43.2%	15.2%
Entergy Corp.	5.4%	2	5.00	7.00	8.8%	6.5%
Eversource Energy	6.4%	4	3.60	4.50	5.7%	6.3%
Exelon Corp.	-3.5%	2	2.70	3.50	6.7%	-0.1%
Hawaiian Elec.	3.3%	1	1.75	2.00	3.4%	3.3%
IDACORP Inc.	2.6%	1	4.65	5.50	4.3%	3.4%
MGE Energy	4.4%	1	2.65	3.00	3.1%	3.8%
New Jersey Resources	6.0%	1	1.90	2.40	6.0%	6.0%
NiSource Inc.	1.8%	1	1.30	2.05	12.1%	6.9%
Northwest Natural	3.3%	1	2.35	3.20	8.0%	5.7%
NorthWestern Corp.	3.7%	3	3.30	4.00	4.9%	4.0%
OGE Energy	2.4%	1	2.10	2.50	4.5%	3.4%
ONE Gas Inc.	5.0%	1	3.50	4.75	7.9%	6.5%
Otter Tail Corp.	9.0%	1	2.15	2.75	6.3%	7.7%
Pinnacle West Capital	3.4%	3	4.95	6.00	4.9%	3.8%
Portland General	4.3%	2	1.45	3.00	19.9%	9.5%
PPL Corp.	-16.2%	1	2.40	2.75	3.5%	-6.4%
Public Serv. Enterprise	1.5%	3	3.40	4.25	5.7%	2.5%
Sempra Energy	6.3%	3	7.20	9.75	7.9%	6.7%
South Jersey Inds.	10.7%	1	1.50	2.50	13.6%	12.2%
Southern Co.	4.6%	2	3.10	3.75	4.9%	4.7%
Southwest Gas	4.0%	1	3.85	6.25	12.9%	8.4%
Spire Inc.	4.7%	2	1.10	5.15	47.1%	18.8%
Unitil Corp.	4.8%	1	n/a	n/a	n/a	4.8%
WEC Energy Group	5.9%	3	3.75	4.75	6.1%	6.0%
Xcel Energy Inc.	5.9%	2	2.75	3.50	6.2%	6.0%

Sources and Notes:

[1] - [2]: Thomson Reuters as of October 15, 2020.

[3] - [4]: From Valueline Investment Analyzer as of October 15, 2020.

[5]: ([4] / [3]) ^ (1/4) - 1.

[6]: ([1] x [2] + [5]) / ([2] + 1).

   Weighted average growth rate. If information is missing from one source, the weighted average is based solely on the other source.

Schedule No. BV-16
Risk Premiums Determined by Relationship Between
Authorized ROEs[1] and Long-term Treasury Bond Rates
During the Period 1990 - 2020
Includes Utility Yield Spread Adjustment
Electric Utilities

Risk Premium = A_0 + (A_1 x Treasury Bond Rate)

R Squared	0.853
Estimate of Intercept (A_0)	8.53%
Estimate of Slope (A_1)	-0.551

Predicted Risk Premium		Exp. Treasury Bond Rate		Est. Cost of Equity for All Natural Gas Utilities
7.34%	+	2.15%	=	9.5%

Sources and Notes:

[1]: Authorized ROE Data from S&P Market Intelligence as of 09/30/2020.

[2]: October 2020 Blue Chip consensus forecast for 2022 10 year T-bill yield + maturity premium between 10 year and 20 year U.S. Government bonds + utility yield spread adjustment.

See Regression Results for derivation of regression coefficients A_0 and A_1