BEFORE THE
STATE OF NEW YORK PUBLIC SERVICE COMMISSION

CASE 19-E-0065	)	Proceeding on Motion of the Commission as to the Rates, Charges, Rules and Regulations of Consolidated Edison Company of New York, Inc. for Electric Service.
CASE 19-G-0066	)	Proceeding on Motion of the Commission as to the Rates, Charges, Rules and Regulations of Consolidated Edison Company of New York, Inc. for Gas Service.

REBUTTAL TESTIMONY OF BENTE VILLADSEN

June 14, 2019

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I. INTRODUCTION AND SUMMARY

Q1. Are you the same Bente Villadsen who provided direct testimony in this matter?

A1. Yes.

Q2. What is the purpose of your rebuttal testimony?

A2. I have been asked to review and comment on the direct testimony of the Staff Finance Panel[1] and the direct testimony of the Westchester Panel[2] as it pertains to cost of capital and capital structure.

Q3. Please summarize your rebuttal testimony.

A3. First and foremost, Staff's recommendation is out of line with the market and the return on equity ("ROEs") that are available to similarly situated utilities in other jurisdictions.

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[1] Prepared Confidential Testimony of Staff Finance Panel, Kristine A Prylo and David P. Warnock, Cases 19-E-0065 and 19-G-0066, May 2019 ("Staff Testimony").

[2] Direct Testimony of the Westchester Panel on behalf of the intervenor – the County of Westchester by Whitfield A. Russell, Antoine A. Gamarra, and Geneva G. Looker in Case No. 19-G-0066, May 24, 2019 ("Westchester Testimony").

As evidence that the recommendation is out of line I reviewed the ROE allowed other electric utilities (and delivery only electric utilities) to find that Staff's recommendation is well below what has recently awarded. If Staff's recommendation was awarded, it would be the lowest ROE in the country.

The reasons for this very low recommendation are discussed below, but Staff's recommendation is caused primarily by Staff's choice of inputs to Staff's DCF and CAPM / Zero-beta CAPM along with the lack of recognition of alternative models (*e.g.*, the risk premium model) and the impact of leverage.

Broadly speaking, it is imperative that the Commission allow a ROE that not only fulfills the capital attraction criteria (emphasized by Staff) but also ensures that Consolidated Edison Company of New York, Inc. ("Con Edison" or the "Company") is allowed the opportunity to earn a return that is comparable to that available on similar risk investments. I view the ROE awarded other electric utilities as one benchmark and Staff's proposed ROE is out of line with that benchmark.

Q4. Is there anything in the Staff Testimony or the Westchester Testimony that has made you change your recommendation?

A4. No. The Company's request remains reasonable.

II. COMMENTS ON THE COST OF CAPITAL AND CAPITAL STRUCTURE RECOMMENDATIONS OF OTHERS

Q5. Please summarize the Staff Testimony recommendation.

A5. The Staff Testimony recommends a ROE of 8.30 percent and a capital structure with 47.30 percent common equity.[3] Staff bases its ROE recommendation on the Capital Asset Pricing Model ("CAPM") and a version of the zero-beta CAPM along with a multi-stage version of the Discounted Cash Flow ("DCF") model that uses sustainable growth. Staff weights its DCF estimate by 2/3 and the average of its CAPM and zero-beta CAPM estimates by 1/3.

[3] Staff Testimony, p. 6.

Q6. What is your reaction to the Staff Testimony?

A6. Staff states that

> Con Edison's requested ROE is excessive and unnecessary for the Company to continue to attract capital at reasonable rates.[4]

and

> [Staff's] 47.30% common equity ratio and 8.30% ROE recommendations, coupled with Staff's adjustments to depreciation expense, are supportive of the Company's current credit profile; …[5]

I have two immediate reactions to these statements. First, the requirements to the allowed ROE is not whether the Company is able to attract capital on reasonable terms or maintain its credit rating. Rather, as I noted in my direct testimony (p. 5) the allowed ROE must satisfy the following three-pronged test: [6]

- The return to the equity owner should be commensurate with returns on investments in other enterprises having corresponding risks;
- The return should be reasonably sufficient to assure confidence in the financial soundness of the utility; and
- The return should be adequate, under efficient and economical management for the utility to maintain and support its credit and enable it to raise the money necessary for the proper discharge of its public duties.

Staff's statements fail to consider the first prong of the *Hope and Bluefield* decisions, albeit Staff in other statements appears to acknowledge the need for a comparable return.[7] Second, I disagree that Staff's conclusion that the Company's request for a ROE of 9.75 percent and a capital structure with 50.00 percent common equity is "excessive and unnecessary."

Q7. Please explain the differences between your approach and that of Staff.

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4 Staff Testimony, p. 8.

5 Staff Testimony, p. 17.

6 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").

7 See *e.g.*, Staff Testimony, p. 9.

A7. The key differences between our approaches are as follows:

a) The reasonableness of the requested capital structure;
b) Staff selects a different sample to use for the derivation of the ROE estimate;
c) Staff does not implement a risk premium model;
d) Staff implements a different DCF model and CAPM;
e) Staff relies on a mechanical weighting of the DCF and CAPM models, which ignores (i) the risk premium results and (ii) fails to recognize that different models may capture different aspects of the cost of equity at a certain time; and
f) Staff ignores the impact of financial risk

I discuss each of these key differences in Sections II below.

Q8. Please summarize the Westchester Testimony.

A8. The Westchester Testimony argues that the Company's requested 9.75 percent ROE is excessive in today's market and objects to Con Edison's use of a hypothetical capital structure with 50.00 percent common equity. The Westchester Testimony does not derive an independent ROE, so I do not comment in detail on this conclusory testimony.

Q9. Do you agree with the Westchester Testimony?

A9. I disagree with the Westchester Testimony. While interest rates and even interest rate forecasts have declined since the filing of my direct testimony, the Company's request for a ROE of 9.75 percent remains reasonable, as does the request for a capital structure with 50.00 percent common equity.

Q10. Has anything changed since you filed your direct testimony?

A10. There have been changes since the time I estimated the cost of equity. Most notably, the actual yield on long-term government bonds, as well as the forecasted yield on long term government bonds has declined. Very recently, as noted in the Westchester Testimony (p. 36), the Federal Reserve has changed its outlook on interest rate increases. At the same time economic growth is essentially unchanged, as are industry characteristics with the exception of the bankruptcy filing of Pacific Gas & Electric Company ("PG&E"), which marks the first time in more than a decade that an investor-owned, regulated utility

has filed for Chapter 11 protection.[8] Also, there are continual trade disputes, lack of clarity on Brexit, and other geopolitical challenges. Importantly, the uncertainty about economic developments could readily lead to volatility in market, which will impact the cost of equity in an upward direction as discussed in my direct testimony (pp. 23-26).

Company Witness Saegusa's rebuttal testimony addresses the importance of using a forecasted interest rate to capture changes to the macroeconomic setting.

Q11. Do any of these matter for the determination of the cost of equity?

A11. Possibly. The forecasted risk-free rate enters my calculation of the CAPM and risk premium-based cost of equity, while industry challenges impact the risk profile of the industry and other movements may impact the overall market risk premium.

Looking to these in turn, the actual yield on 20-year bonds has declined by a bit over 60 basis points since late November 2018 and the forecasted risk-free, as reported by Blue Chip, has declined by approximately 20-40 basis points since October 2018.[9] Importantly, as demonstrated in Section V.E of my direct testimony, the cost of equity does not increase / decrease one-for-one with the risk-free rate, so the impact here would be much less than the change in the forecasted risk-free rate.

The fact that a fully regulated utility has filed for bankruptcy has, all else equal, increased investors risk perception of the industry.

As for the macro-economic effects, a measurable outcome is that the forecasted market risk premium ("MRP") reported by Bloomberg has increased from November 2018 to May 2019; from 7.24 percent to 7.61 percent for an increase in the MRP of about 35 basis points.[10]

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[8] PG&E Press Release, "PG&E Files for Re-organization under Chapter 11," January 29, 2019.

[9] According to the Federal Reserve, the yield on 20-year government bonds was 3.15% on Dec. 3, 2018 and 2.50% on May 29, 2019 for a decline of 65 basis points. As of October 2018, the forecasted 10-year government bond yield was 3.6% (Villadsen Direct, p. 42). According to Blue Chip Economic Indicators, March 10, 2019, the 2022 forecasted yield on 10-year government bonds is 3.2% and the forecast for 2023 is 3.4%.

[10] Bloomberg as of June 6, 2019.

Lastly, I note that there is little to no change in the forecasted economic growth[11] or the earnings growth for utilities, so the DCF results will not have changed.[12] As the average earnings growth forecasts has increased slightly and the GDP growth forecast has decreased slightly, I consider that there is no impact from changes in growth rates.

As a result of these offsetting developments, the Company's request for a ROE of 9.75 percent remains conservative.

A. CAPITAL STRUCTURE

Q12. Why do you disagree with the Staff and Westchester Testimonies on capital structure?

A12. First and foremost, the cost of capital I am estimating and the Commission is setting pertains to the regulated, stand-alone entity and not to the consolidated parent. Therefore, it is not reasonable to rely on the capital structure of the parent (*i.e.*, Consolidated Edison, Inc. ("CEI")).[13] Second, the requested equity percentage, 50.00 percent, is in line with that of other electric utilities. Third, as discussed in my direct testimony, the Tax Cuts and Jobs Act of 2017 ("TCJA") affected utilities differently than other companies in that tax reductions generally flow to customers and, consequently, impact the utility's credit metrics and earnings volatility. As a result, it is necessary that the allowed ROE and appropriate equity capital structure ratio for Con Edison fulfill the requirements set forth by *Hope and Bluefield* once the implications of the TCJA are considered.[14] Because of the credit metric effect and the increased volatility, it is reasonable to increase the equity percentage over that of previous periods. Fourth, as discussed in my direct testimony and below in Section F below, there is a relationship between the ROE investors require and the capital structure (or financial leverage), so a decrease in the equity percentage would require a higher ROE. Therefore, Staff's argument (p. 11) that debt is less

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[11] Blue Chip Economic Indicators, October 2018 forecast a long-term GDP growth of 4.1%. In contrast, Blue Chip Economic Indicators, March 2019 forecast a long-term GDP growth of 4.0%.

[12] A comparison of the average earnings growth rate for electric utilities as reported in my direct testimony (Figure 10, p. 32) and in Staff Testimony (Exhibit FP-6, p. 2 of 3) shows that the forecasted earnings growth is very similar at 5.2% in of my testimony versus 5.24% in Staff Testimony.

[13] See Staff Testimony, p. 16.

[14] Villadsen Direct, Q/A 33-36.

expensive than equity is not accurate. Fifth, Westchester's argument (p. 15) that the use of a capital structure with 50.00 percent common equity will lead to overearnings is not accurate.

Q13. Please elaborate on your views regarding the Staff Testimony's capital structure comments.

A13. First, from an economic or finance perspective, it is the capital structure to which the ROE is applied that matter and not the source of that capital. Professors Brealey, Myers and Allen (2011) emphasize that "[t]he opportunity cost of capital depends on the use to which that capital is put."[15] In other words, the expected return (in dollar) depends on the use of capital – in this case the use of capital by Con Edison – and not on its publicly traded parent company, CEI.

Second, I take issue with Staff notion (p. 17) that the combination of Staff's proposed equity percentage (47.30 percent) and a ROE (8.30 percent) along with other adjustments

> are supportive of the Company's current credit profile; thus, the Company's costly request is not necessary for the Company to continue to attract capital at reasonable terms.

Regardless of whether Staff's statement above is accurate or not, and Company witness Shipman shows that it is not, an equity percentage and ROE that allows for capital attraction is not sufficient to meet the three Hope and Bluefield criteria. Specifically, it is necessary to ensure not only capital attraction but also that the ROE is commensurate with returns on investments in other enterprises having corresponding risks.[16]

Q14. Why do you disagree with the Westchester Testimony's argument that allowing 50% equity will lead to overearning?

A14. The return on equity and the equity percentage cannot be viewed in isolation. The ROE that investors require at 50.00 percent common equity and at, for example, 40 percent

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[15] Richard A. Brealey, Stewart C. Myers, and Franklin Allen, Principles of Corporate Finance, 10th edition, 2011 ("Brealey, Myers and Allen (2011)"), p. 214.

[16] Hope, 320 U.S. at 603.

common equity, is not the same. Specifically, if a company were to decrease its equity percentage and hence increase the debt percentage, both the cost of equity and debt would increase. This is illustrated in Figure 4 of my direct testimony. It is also evident in standard finance texts such as Brealey, Myers and Allen (2011), which state:[17]

> [Modgiliani Miller]'s proposition warns us that higher leverage increases both expected equity returns and equity risk. … Do not interpret any resultant increase in the expected equity as creating additional shareholder value.

Put differently, a reduction in the equity percentage simply merits an increase in the ROE.

Q15. Do you have any other comments on the use of 50 percent equity?

A15. Yes. As discussed in my direct testimony (pp. 39-40), several regulatory jurisdictions have recognized that the reduction in the federal tax rate puts pressure on utilities credit metric and / or increases utilities earnings volatility. Regardless, one way to offset this effect is to increase the equity ratio, which is what certain states (including Alabama, Georgia, and Kentucky) have done.

Q16. Does the Company's request for 50.00 percent common equity remain reasonable?

A16. Yes.

B. PROXY GROUP

Q17. What are the similarities and difference between your and Staff's proxy group?

A17. Both Staff and I selected a proxy group from publicly-traded holding companies deemed by Value Line to be "electric utilities." Staff and I agree that the proxy companies need to be dividend paying and investment grade. We also agree that merger or acquisition activities could impact the estimation process, but use slightly different criteria for removal. Staff removes entities involved in merger or acquisition activities at the time of analysis, while I remove entities engaged in such activity during the estimation period – in practice five years (as Value Line betas are based on five years of weekly data).

[17] Brealey, Myers and Allen (2011), p. 428.

Further, we determine the degree to which a company is involved in regulatory activities differently as Staff considers revenue and requires at least 70 percent to be from regulated activities. In contrast, I base the degree of regulation on assets and require the majority to be subject to regulation (*i.e.*, at least 51 percent, with the majority of companies having in excess of 80 percent). Lastly, Staff eliminates Avangrid for starting to trade in December 2015.[18]

Q18. What are the resulting differences in Staff's and the Company's proxy groups?

A18. Staff includes Avista, Black Hills, Dominion, Hawaiian Electric, NorthWestern Corporation, Sempra Energy, and WEC Energy Group, which I exclude due to recent merger or acquisition activity. Staff also includes First Energy, which I excluded due to its recent dividend cut. In turn, I include DTE Energy, Otter Tail, Public Service Enterprise, and Unitil Corp., which have substantial regulated assets but not 70% revenues from regulated operations. Finally, I include Avangrid as it has both betas and growth rates available from Value Line and IBES.[19]

Q19. What comments do you have on Staff's proxy group?

A19. I have several. First, I continue to believe my proxy group is reasonable. Second, I use assets to determine the degree to which a company is regulated because it is assets that fundamentally are regulated – the revenue requirement is derived from the regulated assets. In addition, finance theory determines the equity and the asset beta of companies, so it appears that assets drive risk characteristic – henceforth, I use assets to assess whether a company is sufficiently regulated.[20]

Third, because it does not appear that the differences in proxy groups cause the difference in estimated ROE, I will not discuss the proxy group differences in detail.

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[18] Staff Testimony, pp. 74-79. Villadsen Testimony, pp. 29-33.

[19] Both Staff and I include El Paso Electric, which on June 3, 2019 announced plans to be acquired by Infrastructure Investment Fund. Going forward, I would eliminate El Paso Electric.

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

C. RISK PREMIUM MODEL

Q20. Does the Staff Testimony consider a risk premium model?

A20. No. Staff (p. 150) objects to the use of a risk premium model because (i) the Commission has not relied upon it in the past and (ii) Staff states it concurs with the Commission's comments that using "allowed returns … are an inferior alternative to a direct estimate of a company's own cost of equity."

Q21. How do you respond?

A21. First, I believe that investors consider the information that is available to them – including the allowed ROE, rate of return ("ROR"), and capital structure of similar companies. As Con Edison needs to compete for capital, it is important that the Company can do so on equal term with other "similar risk" companies. Principally, the risk premium method determines the risk premium over and above a risk-free rate (or a bond yield) that investors in other regulated companies have access to and use the information to derive a cost of equity using the expected / forecasted risk-free rate (or bond yield) at the time rates go into effect. The implied risk premium model provides information about available returns and I believe such information is considered by investors. Importantly, the model is among those recently used by the Federal Energy Regulatory Commission in its decision regarding New England Transmission Owners[21] (*i.e.*, the use of the model has recently expanded in federal transmission regulation). Therefore, it is a model commonly considered in regulatory proceedings and I urge the Commission to reconsider using the risk premium model as one input to the ROE determination.

Second, while the implied risk premium model does not have the theoretical support the CAPM and DCF model do, it does provide a direct benchmark for the return available to other regulated electric utilities, particularly those like Con Edison that are engaged in distribution only (See "Electric Distribution" results). Specifically, the allowed ROEs pertain to the equity portion of the regulated book-value rate base of electric utilities.

[21] See Villadsen Direct at Q/A 18-19 for details.

Therefore, I view the risk premium model as an important part of determining the ROE for a regulated utility.

Q22. Does Staff have other comments on the risk premium model?

A22. Yes. Staff (i) objects to the use of a forecasted risk-free rate in the implementation of the model and (ii) claims that the methodology fails to consider the "risk-reducing regulatory mechanisms of New York State that are not used in all, or even most, other jurisdictions."[22]

Q23. What is your response?

A23. First, as noted in my direct testimony, the relevant interest rate is the best forecast for the period during which rates will be in effect. As demonstrated in Exhibit BV- 4, pp. 1-3, the lower the risk-free rate, the higher is the risk premium over and above the risk-free rate. Thus, if interest rates are expected to increase (decrease), the expectation is that the risk premium over the risk-free rate will decrease (increase). It is important to take this phenomena into account and adjust both the going-forward risk-free rate and risk premium. My implied risk premium model does exactly that. If I were to base the estimate on contemporaneous risk-free rates, the estimated ROE would be downward biased (and the risk premium upward biased).

Second, I disagree with Staff that the methodology somehow is flawed because different jurisdictions rely on different regulatory mechanism. Most jurisdictions have a number of regulatory riders / trackers / alternative rate mechanisms and if I look specifically to the "Electric Distribution" subgroup, it includes decisions from Connecticut, District of Columbia, Delaware, Illinois, Massachusetts, Maryland, Maine, Montana, New Hampshire, New Jersey, New York, Ohio, Pennsylvania, Rhode Island, and Texas. To this end I note that UBS shows New York's regulatory rating below the majority of those and importantly, this is a relatively new phenomena as UBS changed its view on New York regulation in 2018.One of the criteria used by UBS to assess the regulatory

[22] Staff Testimony, p. 150.

environment is "mechanisms that reduce regulatory lag."[23] A similar pattern appears in Regulatory Research Associates, which reports the number of adjustment clauses by utility and state as of September 2018. Many jurisdictions have multiple adjustment mechanisms. Therefore, even if the reliance on such mechanisms impacts the ROE it would already be captured in my ROE estimate.

Q24. What are the implications of Staff ignoring the risk premium model?

A24. Because Staff ignores the risk premium model, Staff fails to recognize the ROE commonly awarded to other electric utilities and also fails to incorporate the phenomena that the ROE changes by less than the change in the risk-free rate. In numerical terms, Staff downward biases the results as there is no consideration of this model. The inclusion of a risk premium model (using March 2019 Blue Chip forecasts for the risk-free rate) would result in a ROE of approximately 9.7 percent to 10.1 percent.[24] Importantly, the estimates in my direct testimony were 9.8% and 10.4%, respectively, which demonstrates that the change in ROE is less than the change in risk-free rates.

By not considering the implied risk premium model, Staff ignores information that is available to investors and downward biases the estimated ROE.

D. MODEL IMPLEMENTATION: CAPM / ECAPM

Q25. Please summarize Staff's CAPM and ECAPM.

A25. Staff implements a standard CAPM averaging the current yield on 10-year and 30-year treasury bonds over a three-month period resulting in a risk-free rate of 2.79%.[25] Staff uses the average Value Line beta for its proxy group (0.61).[26] To determine the MRP,

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[23] UBS, "North America Power & Utilities," Roll On (Erratum), November 29, 2018. Included in Company Witness Saegusa's Exhibit YS-10, p. 6 of 29. UBS look at the following criteria when assessing the regulatory environment: (i) appointed or elected commissioners, (ii) allowed return spread history, (iii) mechanisms that reduce regulatory lag, (iv) rates and customer levels compared to region, (v) tendency to settle versus litigate rate cases, and (vi) a subjective investor friendliness factor.

[24] Using Blue Chip Economic Indicators as of March, I find the implied risk premium is 9.75% using Electric Distribution only and 10.17% using All Electric and the regression in BV-4.

[25] Staff Testimony, p. 95-96.

[26] Staff Testimony, p. 97.

Staff relies on Merrill Lynch data to calculate the forecasted market return at 11.10%; from which it subtracts the risk-free rate of 2.79% for an MRP of 8.31%. Staff also implements a zero-beta version of the CAPM and weighs these two versions equally. I show Staff's calculations in Figure 1 below.

Figure 1
Staff CAPM and Zero-Beta CAPM
Un-adjusted

Model		Risk Free Rate	Beta	Market Risk Premium	Cost of Equity Estimate
		[1]	[2]	[3]	[4]
CAPM	[a]	2.79%	0.61	8.31%	7.88%
Zero-Beta CAPM	[b]	2.79%	0.61	8.31%	8.68%
Staff CAPM Average	**[c]**				**8.28%**

Sources and Notes:
[1] - [4]: Staff Exhibit FP-6 p. 3.
[4][a] = [1][a] + [2][a] x [3][a]
[4][b] = [1][b] + ([2][b] x 0.75 x [3][b]) + (0.25 x [3][b])

Q26. Do you have any comments on Staff's implementation?

A26. Yes. First, using a three-month average risk-free rate is, in my opinion, not representative of the risk-free rate that will be in effect when rates are in effect. Instead, I suggest the use of a forecasted risk-free rate - *e.g.*, the March 2019 Blue Chip forecast for the ten-year rate and adjusted for the typical maturity premium. Second, with respect to the MRP, I prefer to consider both the historical arithmetic average over as long a history as possible and a forecasted MRP.[27]

Like Staff, I implement a version of the zero-beta CAPM. While my formula is different from that used by Staff, both formulas take into account the empirical finding that the Security Market Line is flatter than predicted by the CAPM. Therefore, I shall not address the ECAPM specifics here. Lastly, and importantly, Staff does not take financial leverage into account when reporting their estimates.

[27] Like Staff, I use Value Line betas and shall not comment on the choice of beta.

Q27. What are the consequences of Staff's implementation choices?

A27. Looking first to the risk-free rate, the March 10, 2019 forecasted ten-year yield for 2020 was 3.0 percent, so adding the historical maturity premium results in a risk-free rate of 3.5 percent. As a result of the higher risk-free rate, the forecasted MRP is reduced. Staff forecast a market return of 11.10 percent, so with a risk-free rate of 3.5 percent, the forecasted MRP becomes 7.6 percent (instead of 8.31 percent). As a result, the CAPM and Zero-Beta CAPM adjust as follows:

Figure 2
Staff CAPM and Zero-Beta CAPM
Using 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]	3.5%	0.61	7.6%	8.15%
Zero-Beta CAPM	[b]	3.5%	0.61	7.6%	8.89%
Average	**[c]**				**8.52%**

Sources and Notes:
[1]: BCEI March 2019 Issue p. 3; projection of 10-year US Treasury Note yield for 2020 plus 50bps maturity premium adjustment.
[2]: Staff Exhibit FP-6 p. 3.
[3] = 11.1% - [1], where 11.1% represents Staff's market return input assumption.
[4][a] = [1][a] + [2][a] x [3][a]
[4][b] = [1][b] + ([2][b] x 0.75 x [3][b]) + (1 x 0.25 x [3][b])

Thus, Staff's reliance on the historical risk-free rate downward biased the estimated ROE by nearly 25 basis points (calculated as the difference between the average ROE from Figure 2 and from Figure 1).[28]

E. MODEL IMPLEMENTATION: DCF

Q28. How does Staff implement the DCF Model?

A28. Staff implemented a two-stage model with stage one relying on Value Line's dividend growth rate, while stage two uses sustainable growth, which means it calculate stage two growth, g_2, as:

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

[28] The additional impact of financial leverage is discussed in Section II.G below.

Where b is the dividend retention rate, r is the expected accounting ROE, s is growth in shares, and v is the growth from share prices above book value.[29]

In Staff's model stage one goes through the middle of 2022 and stage two goes through 2218 (or about 196 years).[30]

Q29. Do you have any concerns with this approach?

A29. Yes. There are several inherent problems with the approach. First, the discounted cash flow model fundamentally states that the discounted cash flow that accrues to shareholders equals the stock price. However, the use of dividend growth without any consideration of other means of distributing cash is problematic. Companies increasingly use share buybacks to get cash in the hands of investors, but this is not captured in this approach.[31] The reliance on cash flow or earnings instead of dividends ensure that over time all cash flow due shareholders are counted as such.

Second, there are clearly some inconsistencies in the data or approach. For example, the average and median expected ROE is 11.13 and 10.60 percent, respectively, but the estimated ROE is 8.16 and 7.90 percent, respectively.[32] This inconsistency indicates that there may be some flaws in the data or method used to estimate the ROE as I see no logical explanation why Value Line predicts a ROE of well over 10.0 percent while Staff estimate a ROE that is over 200 basis points lower. As shown in Exhibit BV-5, Table R3, Value Line expects average ROEs for Staff's proxy group to be 11.1 percent (median 10.6 percent) while Staff uses this data to estimate a ROE of 8.2 percent (median 7.9 percent).

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29 Staff Testimony, pp. 85-87.

30 Theoretically, the DCF model considers an indefinite horizon rather than 196 years, but for practical purpose, I do not believe it makes a difference in the calculated ROE.

31 Among Staff's proxy companies, ALLETE recently noted that it was considering using funds from an asset sale to buy back shares and Duke Energy has in the past engaged in significant share buybacks. Sources: Fox Business, "Duke Energy to Buy Back $1.5 Billion in Shares," April 6, 2015 and StarTribune, "Duluth-based Allete sells water business for $270 million," February 8, 2019

32 Staff Testimony, Exhibit FP-6, p. 2.

Fourth, I find the use of only three years in stage one to be too short, as many utilities have planning horizons that are longer than that and readily could grow at a higher or lower rate for more than three years. For example, Con Edison electric long-range plan goes to 2038 and has targets for energy storage, renewables etc. in 2020, 2025, 2030 etc., so there is ample room for Con Edison to grow at a rate different from the sustainable growth rate well into the future.[33]

Fifth, Value Line is one of many sources of forecasts, so I find it unfortunate that Staff relied on a single analyst rather than a consensus (*e.g.*, IBES, Bloomberg).

Q30. What are the consequences of Staff's ROE methodology?

A30. Staff's exclusive reliance on dividend growth in stage one will downward bias the estimated ROE as some companies will engage in share buybacks, which tend to be in place of dividends or dividend growth. Additionally, the data relied upon seem inconsistent. However, as a benchmark on the plausible ROE using Staff's sample and data, I calculate the ROE that results from implementing a single-stage DCF using Staff's dividend growth and find an average ROE of 8.8 percent (median 9.1 percent).[34] This is shown in Figure 3 below.

[33] https://www.coned.com/-/media/files/coned/documents/our-energy-future/our-energy-projects/electric-long-range-plan.pdf

[34] Details are provided Exhibit BV-5, Table No. BV-R4.

Figure 3
Single-Stage Dividend Discount Model Using Staff Inputs
Using Dividends per Share Growth Rates

Company	2019 Dividends per Share	2/19-4/19 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.	$2.35	$80.70	5.0%	3.1%	8.1%
Alliant Energy Corp.	$1.42	$45.95	5.1%	3.2%	8.3%
Ameren Corp.	$1.93	$71.60	7.4%	2.9%	10.3%
American Electric Power	$2.72	$82.43	5.7%	3.5%	9.2%
Avista Corp	$1.55	$41.01	3.8%	3.9%	7.7%
Black Hills Corp.	$2.05	$71.28	6.2%	3.1%	9.3%
CMS Energy Corp.	$1.53	$53.98	6.8%	3.0%	9.9%
Consolidated Edison	$2.96	$82.64	3.6%	3.7%	7.3%
Dominion Energy	$3.67	$74.76	4.9%	5.2%	10.1%
Duke Energy Corp.	$3.79	$89.47	4.5%	4.4%	9.0%
Edison International	$2.45	$62.01	3.3%	4.1%	7.4%
El Paso Electric	$1.52	$56.81	6.4%	2.8%	9.2%
Entergy Corp.	$3.66	$93.22	2.3%	4.0%	6.3%
Eversource	$2.14	$70.03	5.4%	3.2%	8.7%
FirstEnergy Corp.	$1.52	$40.46	5.9%	4.0%	9.9%
Hawaiian Electric	$1.28	$39.40	4.4%	3.4%	7.7%
IDACORP, Inc.	$2.56	$98.44	5.6%	2.7%	8.3%
MGE Energy, Inc.	$1.38	$65.90	4.4%	2.2%	6.6%
NextEra Energy	$5.00	$188.29	7.4%	2.9%	10.3%
NorthWestern Corp.	$2.30	$68.21	4.0%	3.5%	7.5%
OGE Energy Corp.	$1.54	$42.13	5.7%	3.9%	9.6%
PNM Resources	$1.18	$44.82	6.6%	2.8%	9.4%
Pinnacle West Capital	$3.04	$93.20	5.7%	3.4%	9.1%
Portland General Electric	$1.52	$50.35	6.4%	3.2%	9.6%
PPL Corp.	$1.68	$31.58	2.5%	5.5%	7.9%
Sempra Energy	$3.87	$122.78	7.7%	3.4%	11.1%
Southern Co.	$2.46	$50.76	3.1%	5.0%	8.1%
WEC Energy Group	$2.36	$76.45	6.3%	3.3%	9.5%
Xcel Energy, Inc.	$1.62	$54.98	6.0%	3.1%	9.1%
Average			5.2%	3.5%	8.8%
Median			5.6%	3.4%	9.1%

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

The ROE calculated in Figure 3 compares to the Staff's calculation of 8.16 percent and is thus 60 to 90 basis points higher. There is clearly a non-trivial downward bias in Staff's implementation of the DCF model – even before I consider the impact of financial risk.

Q31. Do you have any comments on Staff's critique of your DCF?

A31. Yes. Staff states that

> Given the relatively mature and stable nature of the utility industry, [growth] estimates can be derived with a reasonable degree of certitude.[35]

Yet, Staff critique me for using equity analysts' growth rates for the industry[36] – that seem contradictory. Equity analysts should be better situated than virtually anyone else to estimate growth rates for the industry they follow.

Further, Staff critique my use of earnings growth forecasts.[37] I prefer earnings growth forecasts as earnings growth is available from multiple sources, so it is possible to use a consensus forecast – which is not the case for dividend growth. Also, as noted above, dividends fail to capture all cash flow that accrue to shareholders.

F. MECHANICAL WEIGHTING OF DCF AND CAPM

Q32. How does Staff determine what weight to assign to each model?

A32. Staff mechanically assigns 2/3 weight to the Staff DCF and 1/3 to the average of the CAPM and Zero-Beta CAPM.

Q33. What comments do you have on this approach?

A33. Because each method has advantages and disadvantages, which vary across time due to economic circumstances or data availability, it is unfortunate to maintain a strict weighting regardless of circumstance. To take an extreme example, some European countries have experienced a negative risk-free rate – I question whether it still be appropriate to maintain the same weight on the CAPM in such circumstances.

Looking to recent data on the authorized ROE,[38] the average for distribution only electric utilities was 9.6 percent in 2018 with a range of 8.8 percent in New York (9.2% outside New York) to 9.7% (Delaware).[39] Thus, the estimates above are consistent with the

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35 Staff Testimony, p. 83.

36 Staff Testimony, p. 118.

37 Staff Testimony, p. 118.

38 Regulatory Research Associates, "Major Rate Case Decisions – January – February 2018," January 31, 2019.

39 I exclude Illinois here because electric utilities in Illinois operate with a negotiated formulaic ROE.

lower end of what has recently been awarded, whereas Staff's estimate is lower than any recently awarded ROE.

It is imperative that the outcome be considered in the light of whether it meets the *Hope and Bluefield* standards. Specifically, the requirement that the return allowed Con Edison is comparable to that available to investments of similar risk is imperative. A ROE of 8.3 percent on less than 50 percent common equity as recommended by Staff is at the very bottom of what has recently been allowed in the U.S. and is my opinion unreasonable.

G. FINANCIAL RISK

Q34. Please summarize Staff's testimony regarding financial risk.

A34. Staff considers financial risk to be the uncertainty introduced by the leverage used by the Company. Staff primarily discuss financial risk in relation to credit ratings and ratios,[40] which indicates a creditor (as opposed to an equity) perspective. Additionally, Staff finds that my "risk positioning adjustments" or considerations regarding leverage are "unnecessary."[41]

Q35. What is your reaction to Staff's approach and critique of your leverage considerations?

A35. First, for the purpose of determining the ROE for Con Edison, the relevant financial risk or leverage is that of equity holders – not creditors. The financial risk of creditors is relevant to bondholders, but equity holders are residual claimants with no specified return or terminal value, so they are exposed to the valuation of stocks and bonds in the market. Thus, the relevant measure of leverage from an equity perspective is market value and not book value. Second, it is common practice in textbooks to consider the impact of leverage on the cost of equity and not taking this effect into consideration biases the cost of equity.

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[40] Staff Testimony, pp. 35-37.

[41] Staff Testimony, p. 118.

Q36. Elaborate on the relationship between leverage and the cost of equity?

A36. Yes. As indicated above, financial risk or capital structure is a large topic in financial economics and it is commonly recognized in finance textbooks that financial leverage impacts the cost of equity for a company. A replication of the text from a standard MBA textbook is provided below:[42]

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.

As Professors Berk and DeMarzo further note:

> The levered equity return equals the unlevered equity return, plus and extra "kick" due to leverage. … The amount of additional risk depends on the amount of leverage, measured by the firm's market value debt-equity ratio, D/E….[43]

Financial economics simply do not leave any doubt that the cost of equity increases with financial leverage and that the relevant measure of financial leverage depends on market value. I, like other witnesses, estimate the cost of equity using market data in the CAPM-based and DCF-based models and therefore the estimation process uses market data.[44]

Q37. Could you provide a numerical example to illustrate the impact of financial leverage on cost of equity?

A37. As a simple example, think of an investor who takes money out of her savings and invests $100,000 in real estate. The future value of the real estate is uncertain. If the real estate

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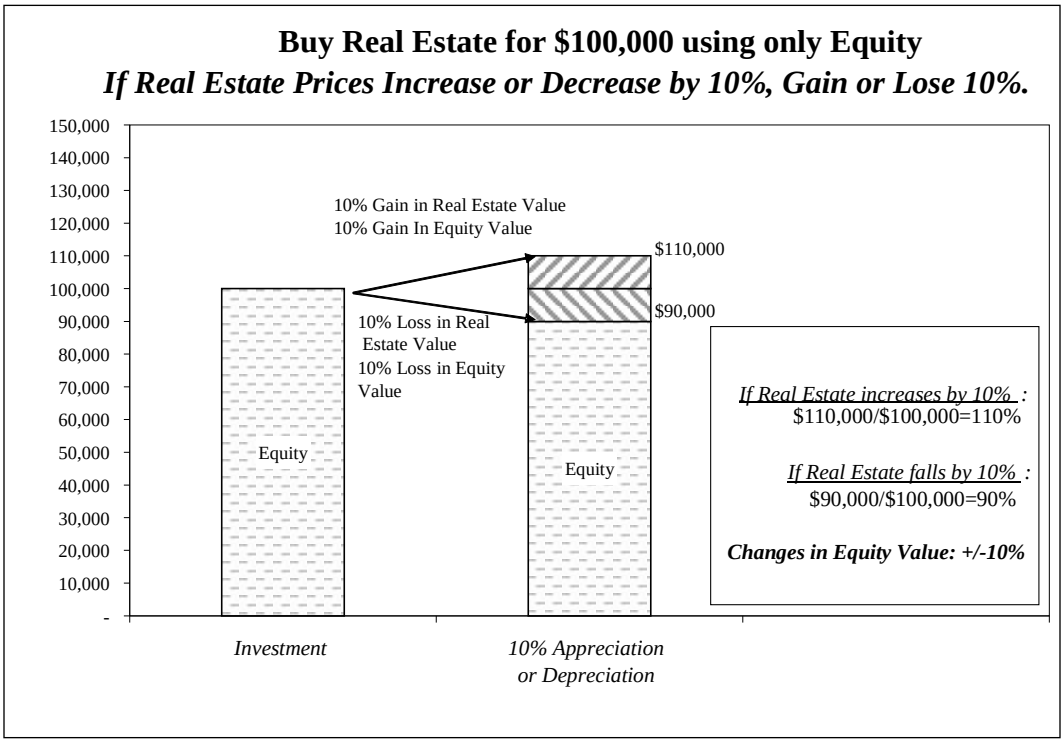
[42] Jonathan Berk and Peter DeMarzo, "Corporate Finance," Third Edition, 2013 (Berk & DeMarzo 2013), p. 492.

[43] 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.

[44] Versions of the risk premium model that use allowed or realized ROEs (such as my implied risk premium model) do rely on book value measures.

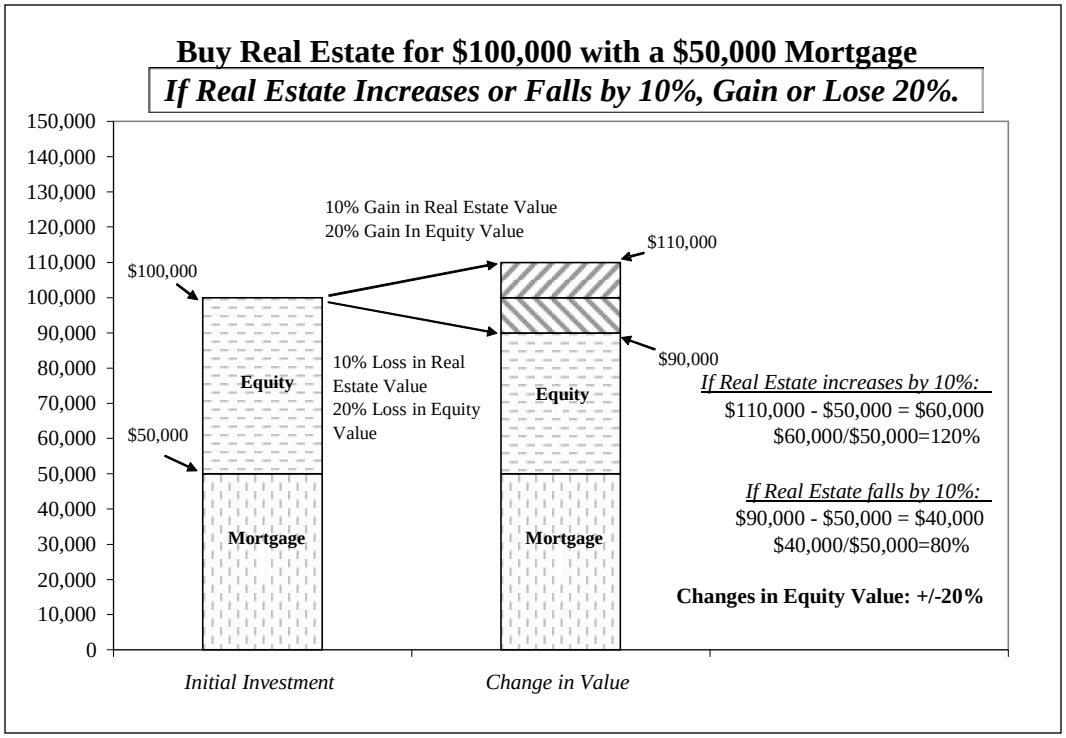
market booms, she wins. If the real estate market declines, she loses. Figure 4 below illustrates this.

Figure 4
Return on an All-Equity Investment



Compare this to the situation illustrated in Figure 5 below, where the investor finances the same real estate purchase using 50 percent cash from savings (equity) and 50 percent funds from a mortgage (debt). In this case variability in the investor's expected equity return is two times greater than that of Figure 4. The entire fluctuation of 10 percent from rising or falling real estate prices falls on the investor's equity investment, which is smaller ($50,000) for the leveraged investment depicted in Figure 5 compared to the all-equity $100,000 investment shown in Figure 4. The equity return for the leveraged investment goes up or down by 20% in Figure 5, even though the actual change in the value of the real estate (+/- 10%) is the same as depicted in Figure 4 for the all-equity investment. The lesson from the example is obvious: debt adds risk.

Figure 5
Return on a Leveraged Equity Investment



Q38. Do finance textbooks also address the question of how financial leverage affect the cost of equity?

A38. Yes. Textbooks on corporate finance provide examples like the one I present above to illustrate how the introduction of debt financing amplifies the variability of equity returns, thus increasing the risk to equity holders and causing them to demand higher expected returns. For example, Professors Brealey, Myers, and Allen write

> Our example shows how borrowing creates financial leverage or gearing. Financial leverage does not affect the risk or the expected return on the firm's assets, but it does push up the risk of the common stock. Shareholders demand a correspondingly higher return because of this *financial risk*.[45]

Similarly, Professors Berk and DeMarzo summarize the effect of leverage on the cost of capital as follows.

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

> *…[L]everage increases the risk of equity even when there is no risk that the firm will default.* Thus, while debt may be cheaper when considered on its own, it raises the cost of capital for equity. Considering both sources of capital together, the firm's average cost of capital with leverage is … the same as for the unlevered firm.[46]

These statements by preeminent finance scholars in widely-used Corporate Finance textbooks highlight two important points that can also be intuitively observed based on the real estate investment example:

- The variability of returns on the asset itself (*e.g.*, the piece of real estate) is unchanged by the introduction of financial leverage, therefore "leverage does not affect the risk or the expected return on the firm's assets." Rather, it is the risk and required returns of the equity and debt financing instruments that are changed by the degree of financial leverage.
- The mechanism by which leverage adds variability to returns is independent of any effect of increased leverage on the risk that the firm will be unable to fulfill its fixed financial obligations, and thus (as Berk and DeMarzo put it) "leverage increases the risk of equity even when there is no risk that the firm will default."

Q39. What are the implications of these fundamental financial principles for Staff's results?

A39. Failing to recognize the impact of financial leverage on the cost of equity results in a non-trivial downward bias in the cost of equity estimates. This can readily be seen by looking to the difference in the Value Line betas obtained at the proxy group's market value and the same beta at 50.00 percent (or 47.30 percent in the case of Staff's recommendation). This is shown in Figure 6 below, where I calculate first the asset (or zero debt financing) beta using Staff's beta estimate and the market value capital structure of Staff's proxy group. Next, in the rightmost column, I calculate the re-levered beta that is consistent with an equity ratio of 50.00 percent (as requested by Con Edison). It is evident that relying on a beta for the proxy group of 0.61 downward biases the ROE result.

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

Figure 6
Hamada Adjustment to Staff Sample Average Beta

Staff Sample Average Beta	Debt Beta	Staff Sample Average Market Value Equity Ratio	Tax Rate	Asset Beta (w/ taxes)	ConEd Regulatory Equity Ratio	Beta at 50% equity ratio
[1]	[2]	[3]	[4]	[5]	[6]	[7]
0.61	0.05	62.2%	26%	0.44	50.0%	0.72

Sources and Notes:
[1]: Staff Exhibit FP-6 p. 3.
[2]: Corporate Finance, Berk and Demarzo, 3rd Edition, p. 413.
[3]: See Exhibit BV-5, Table No. BV-R5.
[4]: Combined State and Corporate Tax Rate.
[5] = ([1] x [3] + [2] x (1 - [3]) x (1 - [4])) / ([3] + (1 - [3]) x (1 - [4]))
[7] = [5] + (1 - [6]) x (1 - [4]) / [6] x ([5] - [2])

Using Staff's risk-free rate (2.79 percent) and market risk premium (8.31 percent), the lack of using the standard textbook method to consider leverage result in a downward bias of the CAPM-based ROE of almost a percentage point; as shown in Figure 7.[47] Thus, the lack of taking financial risk into account downward biases the CAPM results by nearly a percentage point.

Figure 7
Staff CAPM and Zero-Beta CAPM Downward Bias

Hamada Adjusted Staff Sample Beta	[a]	0.72
Staff Sample Average Beta	[b]	0.61
Delta	[c] = [a] - [b]	0.11
Staff Market Risk Premium	[d]	8.31%
Staff CAPM Downward Bias	**[e] = [c] x [d]**	**0.93%**
Staff Zero-Beta CAPM Downward Bias	**[f] = [c] x 0.75 x [d]**	**0.70%**

Sources:
[a]: See Figure 5.
[b], [d]: Staff Exhibit FP-6 p. 3.

For the Zero-Beta CAPM, the impact of not considering financial leverage is slightly lower at about 0.7%.

[47] Staff Beta and MRP from Staff Testimony, p. 103.

Q40. Can you determine the impact on the DCF?

A40. The impact on the DCF results is similar, which can be seen from the following calculation, where the implied ROE is determined the ROE that is required to ensure the After-Tax Weighted Average Cost of Capital remains at 6.40 percent if the common equity percentage is 50.00% and the cost of debt is 4.68 percent.

Figure 8
Implied ROE at 50% Equity Ratio After Financial Risk Adjustment

Staff Sample Average Market Value Equity Ratio	[a]	62.2%
Staff Recommended ROE	[b]	8.20%
Staff Recommended Cost of Debt	[c]	4.68%
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]: See Exhibit BV-5, Table No. BV-R5.
[b]: Staff Exhibit FP-6 p. 3.
[c]: Staff Testimony p. 7.
[e] = [b] x [a] + [c] x (1 - [a]) x (1 - [d])
[f] = ([e] - [c] x (50%) x (1 - [d]) / 50%

Thus, the downward bias due to no consideration of financial risk is even larger for the DCF model than it is for the CAPM models. The estimated downward bias is 1.20% (9.4% minus 8.2%) and I assess the downward bias as at least 100 basis points.

III. CONCLUSIONS

Q41. What do you conclude from the discussion above?

A41. Based on the discussion above, I find that Staff's recommended capital structure and ROE is too low. I am concerned that Staff views capital attraction as the key element of the fair return standard, when the *Hope and Bluefield* decisions clearly rely on three criteria. Specifically, in several instances is there no discussion as to whether the estimated ROE meets the standard of being comparable to that available on investments of similar risk.

Further, I am also concerned about Staff's implementation of the DCF model, as the results appear inconsistent with the data it relies upon, and due to its exclusive reliance on dividend growth in stage one may be missing cash that accrues to shareholders. Further, given the transition in the industry, the lack of using additional methods and relying on a mechanical weighting of the CAPM and DCF models is problematic as each model has its pros and cons, which change depending on economic conditions. Lastly, the failure to consider standard textbook approaches to deal with leverage substantially downward biases the results.

Q42. Can you summarize the impact on the estimated ROE from the concerns discussed above?

A42. Yes. First and foremost, Staff's recommendation is out of line with the market and the ROEs that are available to similarly situated utilities in other jurisdictions. Figure 9 below summarizes the Staff's estimated ROE the required adjustment, as discussed above, and the resulting ROE. As can be seen from the table below, the results indicate that an appropriate ROE is in the range of 9.1% to 10.2%, which is consistent with my recommendation. Con Edison's request for a ROE of 9.75% is well within the adjusted range.[48]

Figure 9
Staff Estimated ROE and Adjusted Staff ROE

	Staff Reported	Adjustment	Revised Estimate
CAPM	7.9%	1.2%	9.1%
Zero-Beta CAPM	8.7%	0.9%	9.6%
DCF	8.2%	1.6% - 1.8%	9.8% - 10.0%
Risk Premium	n/a	9.7% - 10.1%	9.7% - 10.1%

[48] The adjustments are as follows: CAPM: risk-free rate and MRP (0.25%) plus financial risk (0.9%) for a total of about 1.15%; Zero-beta CAPM: risk-free rate and MRP (0.7%) plus financial risk for a total of 0.95; DCF: dividend discount model (0.6%) and financial risk (1.0% - 1.2%) for a total of (1.6%-1.8%).

Thus, the range of reasonable ROE is 9.1% to about 10.1%. Even if I were to apply Staff's methodology and weigh the DCF 2/3 and the average of the two CAPM-based results 1/3, I find a ROE of about 9.6% to 9.8%.

Broadly speaking, it is imperative that the Commission allow a ROE that not only fulfills the capital attraction criteria but also ensures that Con Edison is allowed the opportunity to earn a return that is comparable to that available on similar risk investments. I view the ROE awarded other electric utilities as one benchmark and Staff's proposed ROE is out of line with that benchmark.

Q43. Is there anything in the Staff or Westchester Testimonies that make a ROE of 9.75% and 50% equity unreasonable?

A43. No.

Q44. Does this conclude your rebuttal testimony?

A44. Yes, it does.