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BEFORE THE PUBLIC UTILITIES COMMISSION

OF THE STATE OF CALIFORNIA

Application of Pacific Gas and Electric Company for Authority to Establish Its Authorized Cost of Capital for Utility Operations for 2023 and to Reset the Cost of Capital Adjustment Mechanism (U39M).	Application 22-04-008 (Filed April 20, 2022)
And Related Matters.	Application 22-04-009 Application 22-04-011 Application 22-04-012 [Consolidated]

WILD TREE FOUNDATION OPENING BRIEF

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WILD TREE FOUNDATION OPENING BRIEF

In accordance with Rule 13.11 of the California Public Utilities Commission's ("Commission") Rules of Practice and Procedure, Wild Tree Foundation submits the following opening brief to the above-captioned consolidated applications of the Southern California Edison Company ("SCE"), San Diego Gas & Electric Company ("SDG&E") and Pacific Gas and Electric Company ("PG&E") (collectively the "Utilities"), all seeking increases in their costs of capital.

Wild Tree Foundation ("Wild Tree") is a 501(c)(3) non-profit organization dedicated to the protection of our environment, climate, and wildlife. Wild Tree advocates for transparency, public participation, and compliance with the Rule of Law in government decision-making and against corruption by government agencies and officials and regulated entities.

INTRODUCTION

PG&E, SCE, and SDG&E have failed to meet their burden of proof that their requested capital structures, costs of capital, or changes to the cost of capital mechanism are just or reasonable. The Utilities have not made affirmative showings with percipient witnesses that support any elements of the applications. The Utilities' justifications for their inflated requests, in particular requests for extremely high returns on equity ("ROE"), are unavailing because they include wildfire risk premiums even though risk of liability for utility caused wildfires has decreased, not increased, since the last cost of capital decision. While SCE and SDG&E have entirely failed to demonstrate increased risk due to wildfire liability, investors do see PG&E as a higher risk as a result its imprudent and criminal management. Under no circumstances should PG&E be granted any amount close to the extraordinarily high ROE it has requested based upon risk caused entirely by its own unacceptable behavior.

In addition to overblown claims of special and unique risks, the Utility applications are based upon unreliable witness testimony that uses stale data and narrow, limited, and static approaches in the calculations. Analysis by competent experts using state of the art, market-based, forward-looking approaches demonstrates that the Utility ROEs should be significantly lower than requested and as currently authorized and that capital structure should include a lower common equity ratio. The requested ROEs and other shareholder-favorable aspects of the applications will increase rates and rate increases under such circumstances would be neither just nor reasonable.

The proposal by PG&E to establish a process whereby any utility can file an off-cycle cost of capital application at any time and the cost of capital mechanism ("CCM") automatic

adjustment would be suspended just based upon the filing of the application would be unfair to ratepayers and contrary to the Bluefield and Hope standards. The Commission should reject this proposal in its entirety because it allows the Utilities to benefit from the CCM when it goes their way but avoids lower rates when it does not go their way.

Wild Tree encourages the Commission to carefully consider its thorough and comprehensive presentation and adopt the recommended capital structure and costs of capital describe herein.

RECOMMENDATIONS

Wild Tree Foundation recommends that the Commission approve costs of capital for the electric utilities as follows. Wild Tree does not make specific recommendations for Southern California Gas Company in the consolidated application A.22-04-011 but notes that its requested costs are too high because it relies upon flawed expert calculations in much the same manner that the electric utilities requested costs are too high, as described fully in this brief.

Wild Tree Test Year 2023 Authorized Capital Structure Recommendations

	SCE	PG&E	SDG&E
Long-term debt	49.55%	54.05%	48.00%
Preferred equity	5.00%	0.50%	0.00%
Common equity	45.45%	45.45%	52.00%
Total	100.00%	100.00%	100.00%

Wild Tree Test Year 2023 Authorized Costs Of Long-Term Debt, Costs Of Common Equity, Costs Of Preferred Equity, And Authorized Rates Of Return Recommendations

	SCE	PG&E	SDG&E
Cost of long-term debt	4.27%	4.27%	3.87%
Cost of preferred equity	5.72%	5.52%	0.00%
Cost of common equity range	7.41-8.74%	7.41 – 8.74%	7.15 – 8.48%
Cost of common equity	8.08%	8.08%	7.81%
Rate of Return	6.07%	6.01%	5.92%

Wild Tree's recommended capital structure ratios would prevent overcharging of ratepayers but, in the case that the Commission instead approves the capital structures requested by the utilities, Wild Tree's recommendations on costs are adjusted as follows, to account for equity rich capital structures:

Wild Test Year 2023 Recommended Costs Of Long-Term Debt, Costs Of Common Equity, Costs Of Preferred Equity, And Authorized Rates Of Return Recommendations *If Electric Utility Capital Structure Requests Are Granted*

	SCE	**PG&E**	**SDG&E**
Cost of long-term debt	4.27%	4.27%	3.87%
Cost of preferred equity	5.72%	5.52%	0.00%
Cost of common equity range	7.15% - 8.48%	7.15% - 8.48%	7.07% - 8.40%
Cost of common equity	7.81%	7.81%	7.73%
Rate of Return	6.19%	6.12%	5.96%

BACKGROUND

I. THE COST OF CAPITAL MECHANISM

In D.08-05-035, the Commission established a uniform multi-year cost of capital mechanism (CCM) for SCE, SDG&E, and PG&E (collectively, the "Utilities").

The CCM operates as follows:

> D.08-05-035 created the three-year application process where the complete cost of capital applications would be due every third test year. (D.08-05-035 at 20, Ordering Paragraph (OP) 1.) The next complete cost of capital applications is due in April 2022 with the 2023 test year. Between the three-year applications, the CCM provides for an automatic adjustment in the return on equity (ROE) for the next year if the difference between the

> 12-month October through September average Moody's utility bond rates and the benchmark exceeds a trigger of 100-basis points.[1]

D.08-05-035 explicitly created an "automatic" adjustment and required all the three electric Utilities to file October 15 advice letters implementing any such automatic adjustments.[2] The Commission has repeatedly affirmed the Cost of Capital Mechanism adjustment as a just and reasonable means, consistent with *Hope* and *Bluefield*,[3] of maintaining rates consistent with market conditions.[4] The CCM and its automatic adjustment was made applicable to the electric utilities for 2020-2023 in D.19-12-056.

A. 2022 CCM AUTOMATIC ADJUSTMENT

The difference between the 12-month measurement period of October 2020 through September 2021 average Moody's utility bond rates and the benchmark exceeded the CCM automatic adjustment trigger of 100 basis points. Pursuant to the CCM, as established in the Commission's 2008, 2013, and 2019 CCM decisions, ROEs for the electric utilities should have been adjusted downward effective January 1, 2022 and rates decreased by over $400 million. Instead the electric Utilities elected to file off-cycle applications and knowingly and willingly violate a Commission order that they file Advice Letters to implement the 2022 CCM adjustment.[5]

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[1] A.21-08-013, *Assigned Commissioner's Scoping Memorandum And Ruling* (December 24, 2021).
[2] D.08-05-035 at p. 15.
[3] *Fed. Power Comm'n v. Hope Natural Gas Co.*, 320 U.S. 591 (1944) ("Hope") and *Bluefield Water Works & Improvement Co. v. Pub. Serv. Comm'n of W. Va.*, 262 U.S. 679 (1923) ("Bluefield").
[4] See D.08-05-035, D.13-03-015, and D.19-12-056.
[5] D.21-12-029 at p. 8 ("We reject the Utilities' argument that they could unilaterally conclude that the October 15, 2021 Advice Letters were not required and could be replaced with their August 23, 2021 applications.")

The Utilities' claims in the present applications regarding revenue requirement are based upon comparison to rates that were not decreased pursuant to the lawful operation of the CCM, whereby ROE was automatically decreased for 2022 in response to decrease in interest rates for the previous measurement period. SCE states, "SCE's request would not increase rates for SCE's customers relative to the currently effective cost of capital revenue requirements. (As discussed further below, a decision is pending on SCE's 2022 cost of capital application (A.21-08- 013). Accordingly, the currently effective cost of capital is that authorized in D.19-12-056.)"[6] Without any mention of A.21-08-013, SDG&E claims, "If adopted, SDG&E's proposals will *decrease* the Company's currently authorized rate of return by 0.07% or seven basis points, which will result in an estimated $0.4 million (an electric reduction of $0.6 million electric with a $0.2 million gas increase) revenue requirement *decrease*."[7]

The appropriate comparison in this case is between proposed new rates and the current rates as adjusted, not the rates approved in 2019. The Commission has not repealed or made any modifications or amendments to the CCM including the automatic adjustment. While the Commission temporarily ordered the 2022 rate decrease to be paused during the pendency of the utility applications to permanently suspend it, the Commission has not acted to suspend the 2022 CCM automatic adjustment. 2022 revenue requirements for ROE are being recorded in a memorandum account, and the Commission has made it clear that establishment of the memorandum accounts did not address the merits of the applications for suspension of the CCM:

> Using the existing rates for an administrative task does not mean the Commission has decided any substantive questions involving the CCM adjustment. The memorandum accounts, neutral to customers and the Utilities, will be trued-up according to the final decision in this proceeding. . .

[6] SCE Application at p. 2.
[7] SDG&E Application at p. 3 (emphasis original).

> The Utilities shall create memorandum accounts, effective January 1, 2022, that enable tracking of the difference in the revenue requirement resulting from the current authorized rate of return (not adjusted by the CCM) and the rate of return to be adopted by the Commission in a final decision on these applications. We make clear that one possible outcome of this proceeding is that the Commission finds that the CCM should have been implemented effective January 1, 2022, in which case rates will be able to be adjusted accordingly based on that outcome.[8]

In D.19-12-056, the Commission set the Utilities' test year 2020 authorized costs of long term debt, costs of common equity, costs of preferred equity, and authorized rates of return as follows:

Test Year 2020 Authorized Costs

	SCE	PG&E	SDG&E
Cost of long-term debt	4.74%	5.16%	4.59%
Cost of preferred equity	5.70%	5.52%	6.22%
Cost of common equity	10.30%	10.25%	10.20%
Rate of Return	7.68%	7.81%	7.55%

The Commission in D.19-12-056 also ordered that the Cost of Capital Mechanism continue to be in effect for the Utilities throughout the 2020 Cost of Capital cycle. The authorized costs of long term debt, costs of common equity, costs of preferred equity, and authorized rates of return were to be adjusted January 1, 2022 for the electric utilities as follows:

Authorized Costs of Long-Term Debt, Costs of Common Equity, and Rates of Return As Adjusted by the 2022 CCM

	SCE	PG&E	SDG&E
Cost of long-term debt	4.32%	4.15%	3.81%
Cost of preferred equity	5.89%	5.52%	6.22%
Cost of common equity	9.72%	9.67%	9.62%
Rate of Return	7.21%	7.03%	6.89%

[8] D.21-12-029 at p. 7.

In A.21-08-013 [consolidated], the electric utilities applied for reversal of the 2022 CCM adjustment. A decision has not been issued on these applications. The Utilities have applied in A.22-04-008 [consolidated] for costs that are higher than the authorized costs pursuant to the 2022 CCM.

Utility Test Year 2023 Requests for Costs of Long-Term Debt, Costs of Common Equity, and Rates of Return

	SCE	PG&E	SDG&E
Cost of long-term debt	4.27%	4.27%	4.59%
Cost of preferred equity	5.72%	5.52%	6.22%
Cost of common equity	10.53%	11.00%	10.2%
Rate of Return	7.60%	7.78%	7.55%

II. BURDEN OF PROOF

Public Utilities Code Section 454 requires utilities to demonstrate to the Commission that any proposed new rates are justified. The burden is on the utility to establish the reasonableness of proposed new rates. "To meet the burden of presenting clear and convincing evidence of the need for an increase the applicant must produce evidence having the greatest probative value."[9]

It is a fundamental principle of public utility regulation that "the burden rests heavily upon a utility to prove it is entitled to rate relief and not upon the Commission, its staff or any interested party . . . to prove the contrary."[10] "[T]he burden of proof is on the utility applicant to establish the reasonableness of. . . expenses sought to be recovered. . . We expect an affirmative showing by each utility with percipient witnesses in support of all elements of its application. .

[9] D.00-02-046 at p. 38 quoting from D.90462 at pp. 98-99.
[10] D.83-05-036.

."[11] A utility cannot wait until rebuttal testimony to present salient information supporting its rate request. It is the utility's "direct showing [that] must provide the clear and convincing evidence. Without establishing that basis. . . [the utility] will not have met its burden of proof."[12]

ARGUMENT

I. CAPITAL STRUCTURE (SCOPING ISSUE 1)

A utility has the burden of proof to demonstrate that its requested capital structure produces the lowest reasonable overall cost capital and none of the Utilities have met their burden. Wild Tree's capital structure recommendations are based on Wild Tree's expert Aaron Rothschild and his team at Rothschild Financial Consulting review of the Utilities' justifications for their capital structure recommendations, the capital structure of their holding companies, the capital structure ratios of other electric utility companies, and Commission precedent.

Test Year 2020 Authorized Capital Structure

	SCE	PG&E	SDG&E
Long-term debt	43.00%	47.50%	45.25%
Preferred equity	5.00%	0.50%	2.75%
Common equity	52.00%	52.00%	52.00%

Wild Tree Test Year 2023 Recommended Capital Structure

	SCE	PG&E	SDG&E
Long-term debt	49.55%	54.05%	45.25% OR 48.00%

[11] D.83-05-036.
[12] D.05-08-041 at pp. 7-8 *citing* D.04-03-034.

Preferred equity	5.0%	0.50%	2.75% OR 0.00%
Common equity	45.45%	45.45%	52.00%

Wild Tree provides two alternative recommendations for SDG&E – either the structure remains as it was approved for test year 2020; or preferred equity is eliminated, long-term debt is increased by the amount of preferred equity (2.75% increase to 48.00%), and common equity is retained at 52.00%.

Utility Test Year 2023 Requested Capital Structure

	SCE	**PG&E**	**SDG&E**
Long-term debt	43.00%	47.50%	46.00%
Preferred equity	5.00%	0.50%	0.00%
Common equity	52.00%	52.00%	54.00%

The Utilities' requested capital structures are not appropriate for setting rates in this proceeding for at least two reasons. First, SCE and PG&E are requesting capital structure ratios with significantly more common equity than their holding companies are using to raise capital.[13] As of June 30, 2022, SCE's holding company EIX had a common equity ratio of 32%, PG&E's parent company PG&E Corporation had a common equity ratio of 39%, and SDG&E's holding company SRE had a common equity ratio of 52%.[14] Second, the Utilities' requests contain a significantly higher common equity ratio than the average common equity ratio used by other electric utility companies in the country. Common equity ratios for Wild Tree's expert's electric proxy group ("RFP Electric Proxy Group" or "Electric Proxy Group") have declined since the

[13] WTF-01 at pp. 43-33
[14] WTF-01 at p. 44.

last cost of capital decision in 2019 with an average of 46.6% in 2019 and 45.4% in 2021.[15] All Utilities have requested common equity ratios of considerably higher than the average, with SDG&E particularly high at 54.00%.

A. PG&E

PG&E'S authorized capital structure should be based upon an analysis of PG&E Company's authorized capital structure, PG&E corporation's actual capital structure, and the capital structure used by comparable electric utilities.

PG&E seeks the same capital structure it was granted in 2019 when it was currently under bankruptcy protection and was "a non-dividend paying company with a D credit rating, meaning it is in default on its bond payments."[16] It is no longer in default on bond payments, has credit ratings well above D, has emerged from bankruptcy, and has been authorized billions in securitized bonds including a $7.5 billion securitized bond for wildfire damage settlement costs. Clearly, the conditions that existed in 2019 regarding PG&E's financial status have changed and the test year 2020 capital structure is no longer appropriate.

PG&E was issued a temporary waiver from its authorized capital structure in D.20-05-053. That waiver was granted for a period of five years to expire May 2025, which is during the period covered in its pending application in this proceeding. PG&E would have the Commission take no action on its capital structure leaving the 2019 structure in place, claiming that the Commission taking action now on its capital structure would somehow conflict with its waiver of

[15] WTF-01 at Exhibit ALR-5, page 5.
[16] D.19-12-056 at p. 8.

capital structure and that "Wild Tree's proposal is also inconsistent with the five-year capital structure waiver."[17]

PG&E's position is directly contrary to past representations it has made to the Commission: "PG&E further states that a decision by the Commission confirming the acceptability of PG&E's interpretation of the waiver at this time would not constrain the Commission's ability to review PG&E's capital structure on an ongoing basis."[18]

Wild Tree's proposed capital structure is consistent with the 5-year temporary waiver of its capital structure. The Commission, pursuant to its duty to ensure rates are just and reasonable, determines each utility's authorized capital structure, taking into an account a balancing of interest. "Because the level of financial risk that the utilities face is determined in part by the proportion of their debt to permanent capital, or leverage, we must ensure that the utilities' adopted equity ratios are sufficient to maintain reasonable credit ratings and attract capital while also ensuring there are adequate ratepayer protections regarding the costs of the components of capitalization."[19] Under the Commission's Affiliate Transaction Rules, the utilities are required to maintain the authorized capital structure but may apply for a waiver if the equity ratio is not maintained:

> A utility shall maintain a balanced capital structure consistent with that determined to be reasonable by the Commission in its most recent decision on the utility's capital structure. The utility's equity shall be retained such that the Commission's adopted capital structure shall be maintained on average over the period the capital structure is in effect for ratemaking purposes. Provided, however, that a utility shall file an application for a waiver, on a case by case basis and in a timely manner, of this Rule if an adverse financial event at the utility reduces the utility's equity ratio by 1% or more.[20]

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[17] PGE-02 at p. 1-6:11-13.
[18] D.20-12-025 at p. 40.
[19] D.19-12-056 at p. 6.
[20] D.06-12-029 at Appendix A-3, *Affiliate Transaction Rules Applicable to Large California Energy Utilities* at p. 32.

PG&E's position that, because of the waiver, the Commission should not consider changes to its regulatory capital structure in this proceeding is contrary to the Commission's duty to ensure that rates are just and reasonable, the affiliate transaction rules, and Commission precedent specifically addressing the waiver:

> [T]he 5-year capital structure waiver is flexible to accommodate changed circumstances, but tied to PG&E's projections to deleverage its capital structure. This does not constrain the ability of the Commission to review PG&E's capital structure on an ongoing basis.[21]

A waiver does not itself change or otherwise impact the underlying authorized capital structure. A waiver does not control what the capital structure should be, what capital structure should be used to determine a utility's rate of return, or have any effect after its expiration. Under any conditions, the Commission has a duty in this proceeding, as in all cost of capital determinations, to determine a capital structure for PG&E that provides adequate ratepayers protections. Furthermore, PG&E's waiver will expire in 2025 which is during the three-year cycle that the decision on its application in this proceeding will apply (2023-2026).

In addition, PG&E would have the Commission not review PG&E's capital structure in this cost of capital cycle but would also have the Commission grant it increased rates based upon a different capital structure than that which it currently has. PG&E wants to retain all the benefits of the waiver while shifting all the increased costs associated with the waiver onto ratepayers.

According to PG&E's most recent Advice Letter required pursuant to the bankruptcy decision and capital structure waiver, as of September 30, 2021 it had 56.0% long-term debt, 43.6% common equity, and 0.4% preferred stock[22] and PG&E Corporation's July 2022 Q10

[21] D.20-12-025 at p. 44
[22] Advice Letter 4539-G/6440-E.

balance sheet reveals that its consolidated capital structure contained only 39% common equity as of June 30, 2022.[23] PG&E's witness cited Wild Tree's testimony on this point, "Wild Tree suggests that rates should be set 'using the actual consolidated common equity ratio of 39%,'"[24] but PG&E did not rebut the 39% actual consolidated common equity figure as incorrect or offer any explanation for why PG&E's actual common equity ratio has been decreasing, rather than increasing towards 52% as required under its waiver. But, PG&E would have utility rates computed based on a capital structure containing 52% common equity, which is far off from reality. The financial risk associated with a 43.6% or 39% common equity ratio is substantially higher than that of a capital structure containing a 52% common equity ratio and no doubt increases its financial risk and significantly contributes to the higher beta of PG&E's publicly traded common stock.[25]

While it would be reasonable for PG&E to actually increase its consolidated common equity ratio up to 52%, using this higher common equity ratio to set rates without having a requirement for the company to first actually increase its consolidated common equity ratio would be wrong because 1.) it would be forcing ratepayers to pay the higher revenues without benefiting from being served by a utility company with the materially lower financial risk associated with the higher common equity ratio, and 2.) using a common equity ratio to compute the Company's revenue requirement would create a powerful disincentive for the Company to increase its common equity ratio up to 52%.[26]

[23] WTF-01 at p. 44.
[24] PGE-02 at p.1-5:n 16.
[25] WTF-01 at p. 47.
[26] WTF-01 at p. 47.

PG&E claims the waiver is "more than enough incentive" to return its regulatory capital structure of 52% common equity:

> When it authorized the five-year capital structure waiver in the POR OII Decision, the Commission clearly stated that it expects PG&E to deleverage over that time period and to regain closer alignment with its authorized capital structure. Consistent with the company's post-emergence deleveraging plan, we recently issued $7.5 billion of securitization bonds authorized by the Commission, the proceeds of which are being used to retire $6 billion of temporary utility debt issued at emergence to pay wildfire claims. This retirement of debt reduces our leverage, and strengthens our credit metrics. We believe these recent developments demonstrate that we are on the right path to regaining an investment-grade issuer credit rating. Wild Tree's proposal would disrupt and impede that path. PG&E is very focused on returning its regulatory capital structure to 52 percent common equity. The temporary nature of the waiver is more than enough incentive.[27]

But PG&E's claims that it has the best of intentions are contrary to the fact that PG&E has been moving in the wrong direction – actually decreasing common equity between September 2021 and July 2022.

The Commission should not base PG&E's costs upon a fictional capital structure but should base costs on a reasonable common equity ratio that takes into account PG&E's actual capital structure from which it is benefiting from under the waiver. Using a common equity ratio for regulatory purposes that is materially higher than the common equity ratio of the capital structure it is actually using allows the company to earn an equity return on what it is actually financing with debt.[28] At the same time this increased return effectively provides a windfall gain to stockholders at the substantial expense of ratepayers, it puts the company in the position where it would lose the benefit of that excessive return if it really did increase its common equity ratio.[29] Authorizing a 45.45% common equity ratio for PG&E until it increases its actual capital

[27] PGE-02 at p. 1-7:14-18.
[28] WTF-01 at p. 48.
[29] WTF-01 at p. 48.

structure common equity ratio to 52% would be reasonable because it would 1.) provide PG&E some additional financial protection as compared to using its current (as of June 30, 2022) actual common equity ratio of 39%, 2.) increase its incentive to increase its actual common equity ratio to 52%, and 3.) would decrease the unjustified and unnecessary financial burden on consumers. A regulatory capital structure with a 45.45% common equity ratio is reasonable because it reflects the capital structures used by other comparable electric utilities.

Rather than implementing regulatory policy that would provide PG&E with a disincentive to improve its common equity ratio and correspondingly lower its financial risk, Wild Tree proposes that the Commission implement a regulatory framework that would increase the Company's incentive to improve its consolidated common equity ratio. The way to do this would be to set rates now at a conservative level of 45.45% but providing for a mechanism whereby PG&E could apply to increase its rates if and when it actually increases its common equity ratio up to as much as the 52% common equity ratio it has requested for ratemaking purposes. For example, the Commission could permit the Company to receive a rate increase that would be justified by an increase in the common equity ratio between now and the time of its next rate proceeding. If PG&E can both prove that it has increased its consolidated common equity ratio and does not expect any forecasted bond issuances to lower that common equity ratio, it could be allowed to increase its rates accordingly.

This proposal is in line with the Commission intention that stakeholders and the Commission have an opportunity to review PG&E's actual capital structure:

> The temporary waiver provided by D.20-05-053 gives PG&E flexibility to emerge from bankruptcy, while requiring PG&E to file annual updates in Advice Letters on its progress of deleveraging, including deviations from its projections. The annual Advice Letter updates are intended to provide stakeholders and the Commission an opportunity to review PG&E's

actual capital structure, and should deviations be material, identify solutions to achieve deleveraging and return to the authorized capital structure over time.[30]

There does indeed appear to be at least a question as to whether PG&E is on track to returning to the authorized capital structure and Wild Tree's proposal could provide a solution to a problem of decreasing common equity ratio. If the Commission does authorize PG&E's requested capital structure, then Wild Tree's cost of common equity recommendation decrease from 8.08% to 7.81% as follows:

Wild Tree Recommendations for PG&E with Differing Capital Structures

	Wild Tree Recommendation	**Wild Tree Recommendation with PG&E Requested Capital Structure**
Capital Structure	54.5% long term debt 0.50% preferred equity 45.45% common equity	47.50% long term debt 0.50% preferred equity 52.00% common equity
Cost of long-term debt	4.27%	4.27%
Cost of preferred equity	5.52%	5.52%
Cost of common equity	8.08%	7.81%
Rate of Return	6.01%	6.12%

The annual revenue requirement for PG&E would be about $100 million higher if PG&E's requested capital structure (52% common equity ratio) is used to set rates instead of Mr. Rothschild's capital structure recommendation (45.45%) is used to set rates.[31] A cost of equity of 7.81% was used to calculate the revenue requirement with PG&E's requested capital structure

[30] D.20-12-025 at p. 43.

[31] The annual revenue requirement difference of $100 million was calculated based on the following values a rate base of $25.203 billion, and federal income and state income tax rates of 21% and 8.84% respectively. (A.21-06-021, *Application of Pacific Gas and Electric Company for Authority, Among Other Things, to Increase Rates and Charges for Electric and Gas Service Effective on January 2, 2023* at Attachment G, Table 1.

and an 8.08% cost of equity was used to calculate the revenue requirement for Mr. Rothschild's capital structure recommendation. PG&E's cost of equity would be lower if its requested capital structure is adopted as compared to Mr. Rothschild's because a higher common equity ratio results in lower financial risk.

B. SCE

SCE's authorized capital structure should be based upon an analysis of SCE's holding company's actual capital structure and the capital structure used by comparable electric utilities. SCE's requested capital structure is not appropriate because 1.) it contains a significantly higher percentage of common equity (52%) than is being used to fund its operations (32%) and 2.) it contains a significantly higher common equity ratio than is being used by other electric utility companies on average (45.4%).[32] Since equity has a higher cost rate than debt, if SCE's requested capital structure is used to set rates, its consumers will be significantly overcharged.

SCE's authorized capital structure should have a common equity ratio of no more than its holding company's actual common equity ratio. The capital structure of SCE's holding company EIX with a common equity ratio of 32%, is highly indictive of the percentage of debt and equity being used to fund SCE's operations.[33] SCE's financial condition and associated bond ratings are highly impacted by EIX. This makes sense because EIX raises equity capital for SCE. The financial relationship between SCE and EIX is evident by comparing the credit ratings and capital structures of EIX and SCE to the credit ratings and capital structure ratios of other electric

[32] WTF-01 at pp. 44-45.
[33] WTF-01 at p. 45.

utilities.[34] EIX's common equity ratio of only 32% is low by industry standards. The average common equity ratio of the electric utilities in the RFC Electric Proxy Group is 45.4%.

The relatively low common equity ratio of EIX is an integral part of why EIX and SCE have relatively low credit ratings. EIX has a BBB credit rating from S&P and a Baa3 rating from Moody's.[35] Just about all the electric companies in SCE's proxy group have higher credit ratings than both EIX and SCE.[36] Eight of the companies in SCE's proxy group have an S&P credit rating of A- or higher and most of the rest have S&P credit ratings of BBB+.[37] Despite SCE's 52% regulatory capital structure, it has a BBB credit rating from S&P, just like EIX, and a slightly higher credit rating of Baa2 from Moody's.[38] It is therefore apparent that the lower credit rating of SCE is due to the capital structure of EIX.

It would be unfair to ratepayers to burden them with the revenue requirement associated with a 52% common equity ratio because EIX's 32% common equity is suppressing its credit rating and therefore increasing SCE's cost of debt. In other words, consumers would be charged for both the high cost SCE's conservative capital structure and the higher cost of debt resulting from EIX's highly-leveraged capital structure. Given these facts, the common equity ratio that should be used to compute the overall cost of capital of SCE should be no higher than the 45.4% average common equity of comparable electric utilities. If EIX were to improve its common equity ratio to this level, both its credit rating and the credit rating of SCE would likely be in line with the credit ratings of the comparative electric companies.[39]

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[34] WTF-01 at p. 45.
[35] WTF-01 at p. 45.
[36] WTF-01 at pp. 45-46.
[37] SCE-02 at p. 31, Figure 8.
[38] WTF-01 at p. 46.
[39] WTF-01 at p. 46.

C. SDG&E

SDG&E's authorized capital structure should have a common equity ratio of no more than its holding company's actual common equity ratio (52%).[40] SDG&E's capital structure request is similar what it requested in its last cost of capital application. The Commission found that request unreasonable and it was denied.[41] In both cases, SDG&E would eliminate preferred equity, insignificantly increase long-term debt, and significantly increase common equity. For the same reasons this scheme was denied in 2019, it should be denied here. For test year 2020, the Commission found:

> SDG&E's requested modification of its capital structure is denied. It is unreasonable for SDG&E to request an elimination of its authorization for preferred equity while simultaneously indicating that it must have an authorization for common equity to maintain its desired level of credit support. Because SDG&E is not requesting a significant increase in long-term debt, this decision will authorize no modification. SDG&E shall maintain its current authorization of 45.25% long-term debt, 2.75% preferred equity, and 52.00% common equity.[42]

To align with its holding company common equity ratio of 52.00% and keep the ratio closer to electric utility proxy average of 45.5%, SDG&E common equity ratio should remain 52.00%. Wild Tree recommends that either the test year 2020 capital structure be maintained or the preferred equity ratio be decreased with a commensurate increase in the long-term debt ratio. In no case, should SDG&E capital structure be increased to 54.00% common equity.

[40] WTF-01 at p. 49.
[41] D.19-12-056 at p. 11.
[42] D.19-12-056 at p. 11.

II. COST OF CAPITAL FOR THE ELECTRIC UTILITIES (SCOPING ISSUES 2 – 5)

Wild Tree's cost of equity ("COE") recommendations are based on the return investors require to provide equity capital to the Utilities based on current capital markets.[43] Since investors must pay the market price of a stock to make an investment, investors' required returns are based on the return they expect to receive on the market price of stocks. In other words, the Utilities' COE is "market-based."

Wild Tree's recommendations are consistent with the following legal standards set by the United States Supreme Court for a fair rate of return:

> The return to the equity owner should be commensurate with returns on investments in other enterprises having corresponding risks.[44]

> A public utility is entitled to such rates as will permit it to earn a return on the value of the property which it employs for the convenience of the public equal to that generally being made at the same time and in the same general part of the country on investments in other business undertakings which are attended by corresponding risks and uncertainties; but it has no constitutional right to profits such as are realized or anticipated in highly profitable enterprises or speculative ventures. The return should be reasonably sufficient to assure confidence in the financial soundness of the utility and should be adequate, under efficient and economical management, to maintain and support its credit and enable it to raise the money necessary for the proper discharge of its public duties. A rate of return may be reasonable at one time and become too high or too low by changes affecting opportunities for investment, the money market and business conditions generally.[45]

[43] WTF-01 at p. 3:14-4:4.
[44] *Fed. Power Comm'n v. Hope Nat. Gas Co*., 320 U.S. 591, 603 (1944).
[45] *Bluefield Water Works & Improvement Co. v. Pub. Serv. Comm'n of the State of W. Va.* 262 U.S. 679, 692-693 (1923).

An important part of the process of determining the market-based COE is to apply cost of equity models to the financial data of a proxy group of companies that have similar risk characteristics to the Utilities. To arrive at its recommendations, Wild Tree's expert applied the constant growth and non-constant growth versions of the Discounted Cash Flow ("DCF") and eight variations of the Capital Asset Pricing Model ("CAPM") to a proxy group of 26 publicly traded electric utility companies ("RFC Electric Proxy Group") using data available through June 30, 2022. To measure the cost of equity accurately during rapid change, it is critical to use current market data. Capital market data can provide insights into investors' risk perceptions for electric utility stocks and informs Wild Tree's recommendations to ensure the Utilities are competitive in the race to raise capital without overcharging ratepayers.

Wild Tree's recommendation differ from the Utilities witnesses because Wild Tree's expert utilizes fundamentally different analytical approaches to calculate the COE. The Utilities' analyses all begin from incorrect definitions for the cost of equity. The Utility witnesses in this proceeding implicitly define the cost of equity, at least in part, as a hybrid of accounting returns (return on book equity) and return expectations of "expert forecasters" such as economists and equity analysts. The witnesses even go as far as using their personal market speculations to calculate the cost of equity. This characterization of the cost of equity as largely subjective is erroneous and should not be relied upon by the Commission in its decision-making on the applications.[46] The Utilities' witnesses rely almost exclusively on non-market data, including economists' projections, analysts' forecasts, and the witnesses' own speculations, even when market data is available.

[46] WTF-01 at p. 19:4-6.

Mr. Rothschild focuses on using market data (e.g., stock prices, bond yields, stock option prices) to measure investors' expectations as much as possible.[47] Capital markets are unpredictable and it is investors' expectations that matter since they are the ones providing the capital. Therefore, Mr. Rothschild provides an expert evaluation of investors' return expectations as indicated by the current market prices of stocks, bonds, and stock options, without attempting to predict future prices.

The ROEs requested by the Utilities, based on their witnesses recommendations, range from 10.53% to 11.00%. Their requested ROEs are considerably higher than return expectations published by major consulting firms, brokerage houses, and market data publications (4.1% - 9.0%).[48] Major financial institutions are informing their clients to expect returns on their investments similar to the COE Mr. Rothschild has propose in his testimony. The return expectations published by all these financial institutions are based on their own financial models and are broadly for the overall stock market (e.g., U.S. Large Cap, S&P 500). Given the relatively lower risk associated with monopoly utilities, it is unlikely that investors would expect to earn a higher return for a utility company than for the overall stock market.[49]

A. ANALYSIS OF COST OF EQUITY IN TODAY'S FINANCIAL MARKETS DEMONSTRATES THAT THE UTILITY REQUESTED COSTS ARE TOO HIGH

Capital market data indicates that the cost of equity for electric utility companies has decreased relative to the overall market since the onset of the COVID-19 pandemic, with an

[47] WTF-01 at p. 16:13-15.
[48] WTF-01 at p. 16, Table 7.
[49] WTF-01 at p. 16.

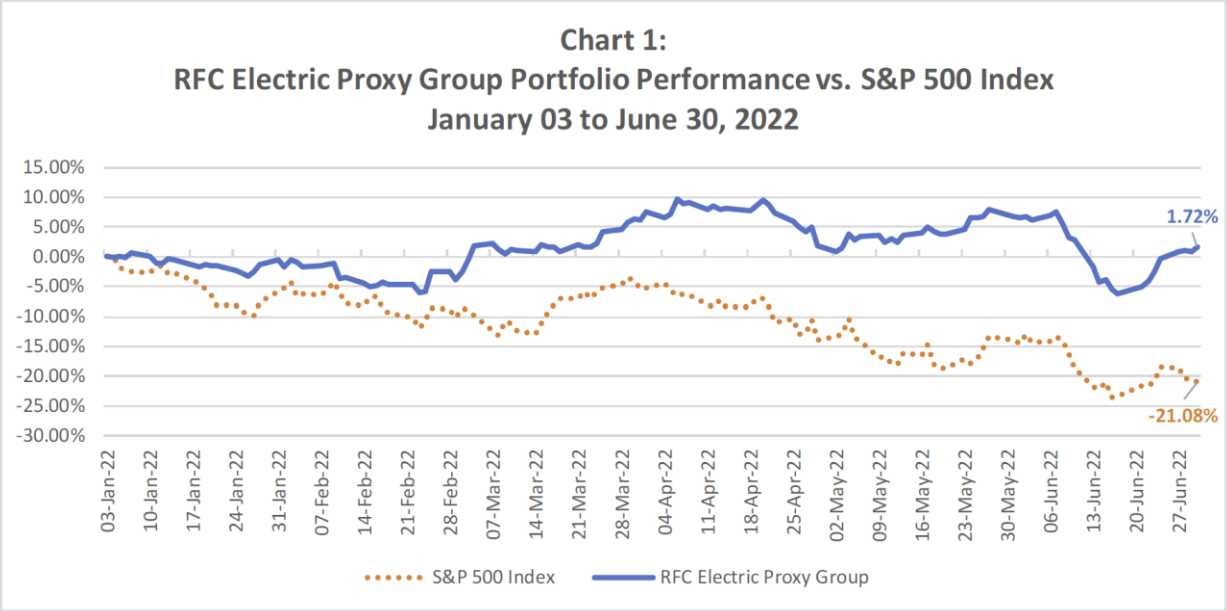
accelerated decline since Russia invaded Ukraine.[50] The onset of the war in Ukraine has increased market volatility and possibly even increased the cost of equity for the market overall, but investors volatility expectations for electric utility companies has decreased somewhat relative to the overall market.[51] The war in Ukraine and COVID-19 have made it more challenging to determine the current cost of capital because these developments have increased the speed and intensity of capital market change.

Market developments that have impacted the cost of equity include: utility stock prices have overperformed the overall market as interest rates and inflation have risen in recent months; volatility expectations for electric utility companies have decreased in relation to the overall market; investor-perceived downside risk for electric utility companies remains relatively low.

1. Utility Stock Prices

Utility stock prices have overperformed the overall market as interest rates and inflation have risen in recent months. In 2022, most equity investors had one of their worst first halves of a year since 1970; the S&P 500 is down about 21% as of June 30, 2022.[52] In contrast, capital market data indicates that electric utility stocks have become significantly more attractive to investors in recent months. As shown in Chart 1 below, the relative overperformance of electric utility stocks in 2022 is a sharp break from a period of relative underperformance from the initial outbreak of COVID in March 2020, until the end of 2021.[53]

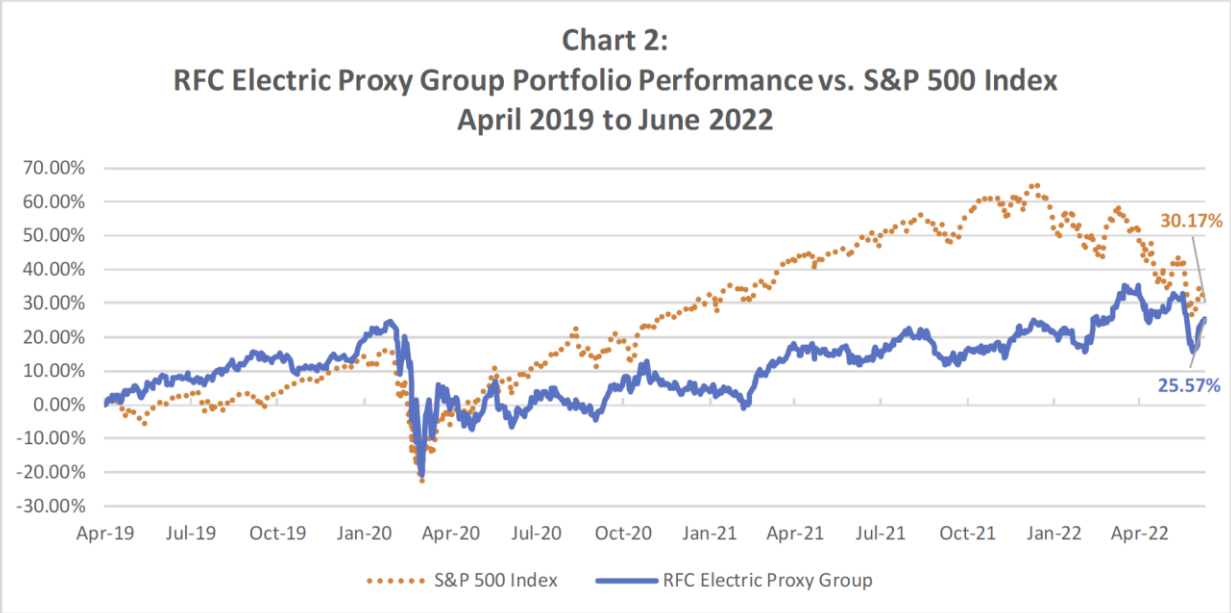
[50] WTF-01 at pp. 30-32.
[51] WTF-01 at pp. 30-32.
[52] WTF-01 at p. 22:18 – 23:2.
[53] WTF-01 at p. 13, Chart 1.



The Utilities predict that utility stock will underperform the market despite evidence to the contrary. For example, SDG&E's witness Mr. Coyne claims that utility stocks are expected to decline and underperform the overall market.[54] He does not base his claim regarding future utility stock price performance on market data but instead bases his claims on his own opinion and pure speculation. Even though he provides a chart showing that utilities underperformed the market between January 2020 and February 2022,[55] Chart 1 shows that in the first 6-months of 2022, and particularly since Russia invaded Ukraine on February 24, 2022, electric utility stocks are up nearly 2% while the S&P 500 is down over 21%. Despite the recent significant overperformance of electric utility stocks, they are up a little less than the overall market between the last California cost of capital proceeding and today because of what happened in

[54] SDGE-04 at p. 28:7-9
[55] SDGE-04 at p. 20, Figure 5.

2020 and 2021. Over this time period, electric utility stocks are up less than 26% while the S&P 500 is up slightly over 30%.



All else equal, the recent relatively strong stock price performance of electric utility stocks indicates a declining cost of equity for electric utility companies since the start of the War in Ukraine.[56] However, the recent exceptional stock price performance of electric utility stocks is only one element among many that we must consider to determine the COE for electric utility companies and what would be an appropriate authorized ROE for the Utilities in this proceeding.

2. Inflation and Interest Rates

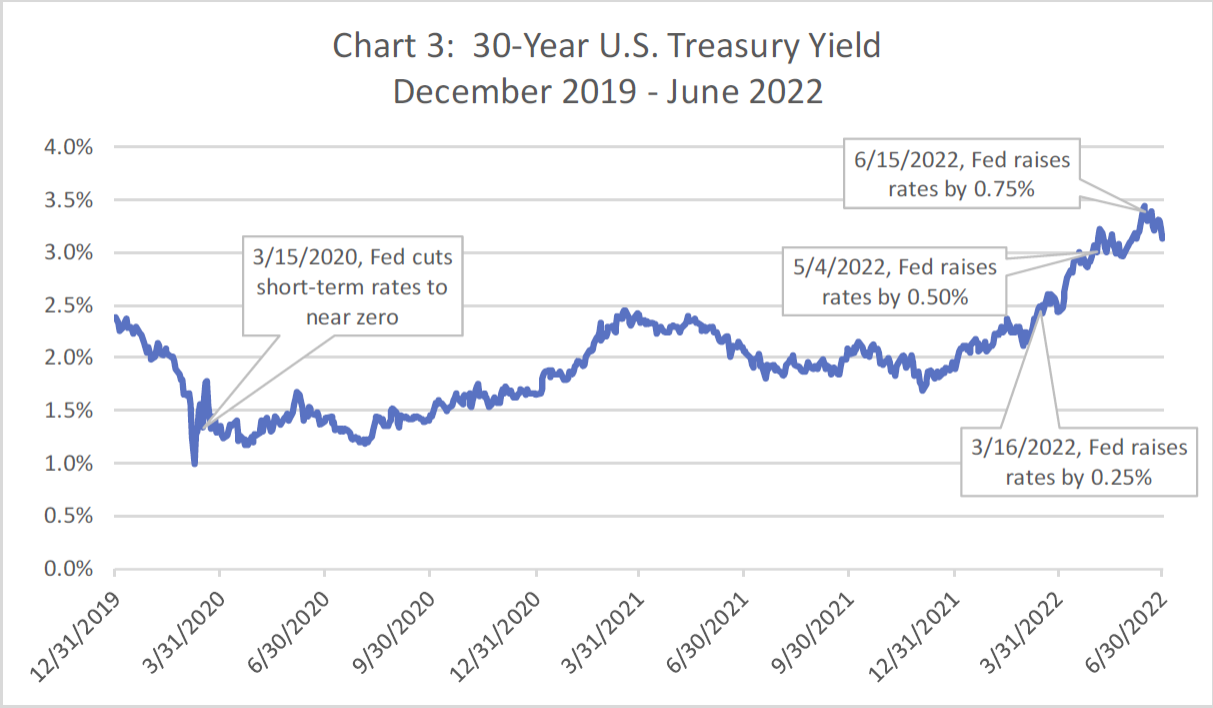
Actual financial data indicate that despite high current inflation and recent increases in interest rates, capital market conditions are favorable for electric utility companies to raise low-

[56] WTF-01 at p. 14.

cost equity capital.[57] The Utilities rely upon speculations regarding inflation and interest rates to justify increased costs of equity. Inflation may or may not remain high (9.06% as of June 30, 2022), but for the purposes of this proceeding, what matters most is actual, current data of investors' expectations, not the speculations of journalists or economists or utility witnesses.

a. Interest rates

Interest rates remain at historically low levels despite recent increases. The yield on the 30-year U.S. Treasury bond reached over 15% in 1981 and averaged over 8% in the 1980s and over 6% in the 1990s. [58] As shown on Chart 3[59], yields on 30-year U.S. Treasuries have increased from about 1% on March 9, 2020 to 3.14% as of June 30, 2022.[60]



[57] WTF-01 at p. 12:8 – 13:2.
[58] WTF-01 at p. 25:16-18.
[59] WTF-01 at p. 26, Chart 3.
[60] WTF-01 at pp. 25-26.

As expected by investors, in 2022, the Federal Reserve has voted to raise the benchmark federal-funds rate by a quarter percentage point to between 0.25% and 0.5% in March, another 0.5% in April and 0.75% in June. As of June 30, 2022, the Federal Funds rate is 1.50%-1.75%.[61] Higher interest rates, all else equal, generally indicate a higher cost of equity for electric utility companies because fixed income investments become relatively more attractive when they start paying a higher rate (e.g., a bond with an interest rate of 3% is more attractive to investors, all else equal, than when they are paying a 2% rate). However, despite recent increases in interest rates, the stock prices of the companies in the Wild Tree's expert's electric proxy group have been significantly outperforming the overall market.[62]

Current long-term Treasury bond yields represent a direct observation of investor expectations and there is no need to use "expert" forecasts such as Blue Chip to determine the market-based cost of equity.[63] Current long-term interest rates on U.S. Treasuries represent investor's future interest rate expectations because the price of bonds and interest rates move inversely.

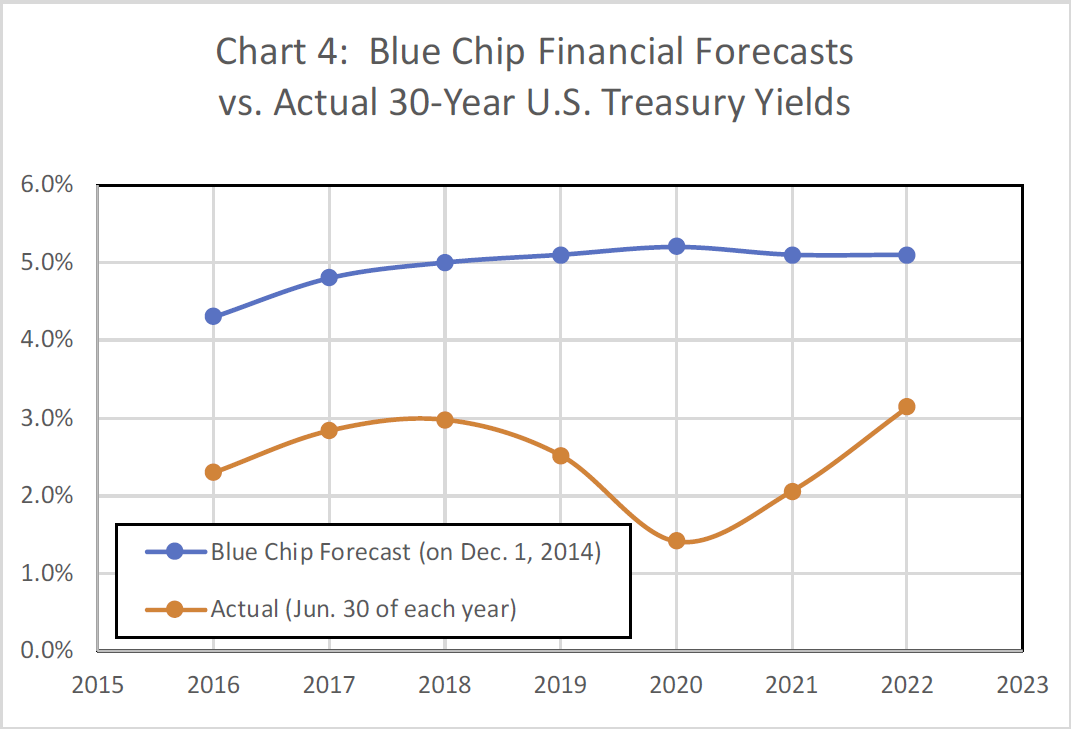
The Utilities witnesses have been demonstrably wrong in their past attempts to forecast interest rates. In the 2019 Energy COC proceeding, the Utilities used increased interest rate forecasts that were higher than investor expectations as indicated by market data. In PG&E's 2019 COC testimony, PG&E's expert Dr. Vilbert claimed, "I do not believe the current yield on the long-term Treasury bond is a good estimate of the risk-free rate that will prevail over the

[61] WTF-01 at p. 26:1-4.
[62] WTF-01 at p. 26.
[63] WTF-01 at p. 27.

relevant time period. Interest rates are expected to increase."[64] It turned out that interest rates declined substantially – so substantially that the CCM adjustment mechanism was triggered.[65]

Those who are willing to provide forecasts of the unforecastable often argue that their forecast would have been correct if not for a specific unexpected event. However, capital markets are fundamentally unpredictable because there are always unexpected events (e.g., war, pandemics, natural disasters) that impact capital markets, including interest rates. Consumers were overcharged in the 2019 Energy COC proceeding based, in part, upon such speculations.[66] The Utilities continue to rely upon such speculation. SCE's witness Dr. Villadsen, for example, stated in her testimony that she relies upon Blue Chips forecasted yields because, "I do not believe the current yield on long-term Treasury bonds is a good estimate for the risk-free rate that will prevail over the time period relevant to this proceeding."[67] In fact, Blue Chip's interest rate forecasts have been persistently inaccurate. As Chart 4 shows, Blue Chip Financial forecasted in 2014 that 30-Year U.S. Treasury bonds would be over 5% by 2018 while in fact they turned out to be about 3%.[68] The time covered in Chart 4 provides a concrete example of how unreliable Blue Chip forecasts have been.

[64] WTF-01 at p. 28, A.19-04-014, Direct Testimony of Michael Vilbert on behalf of PG&E (April 22, 2019) at p. 2-57:13 - 15, available at: https://docs.cpuc.ca.gov/PublishedDocs/SupDoc/A1904015/2037/283492541.pdf .
[65] WTF-01 at p. 28:3-5.
[66] WTF-01 at p. 28.
[67] SCE-02 at Appendix B: Technical Appendix, p. 6.
[68] WTF-01 at p. 28, Chart 4.



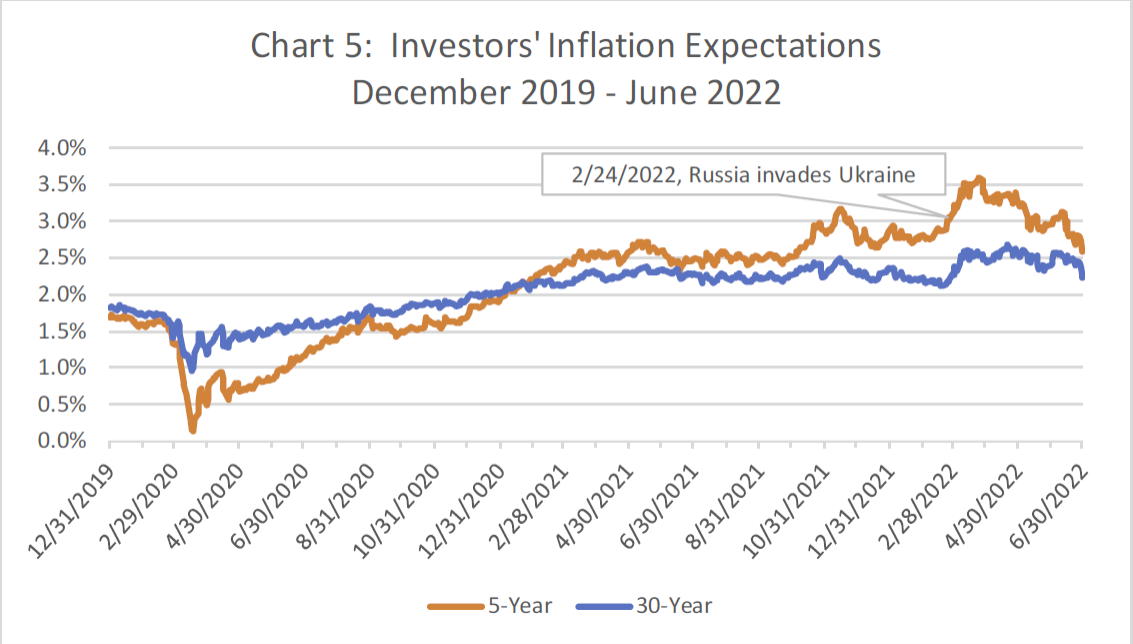
Interest rates may or may not remain at historically low levels (interest rates remain at historically low levels even after increases in the first 6-months of 2022), but it is safe to say interest rates are unpredictable and utility consumers should not pay higher rates because utility witnesses believe they will increase based on forecasts that have proven to be unreliable.[69]

b. Inflation

It is possible to measure investors' inflation expectations directly simply by subtracting the interest rate of nominal Treasuries and TIPS (Treasury Inflation-Protected Securities) of comparable maturities.[70] This difference is referred to as the "breakeven inflation rate" because it represents what inflation would have to be for an investor to "break even" or make the same

[69] WTF-01 at p. 29:8 – 30:2.
[70] WTF-01 at pp. 32-33.

return on both nominal Treasuries and TIPS. As indicated by the difference between nominal-treasures and TIPS, investors' inflation expectations decreased substantially during the height of COVID's impact on capital markets.[71] As shown on Chart 5, the relative market price of TIPS as compared to regular Treasury bonds, in March 2020, investors expected the inflation rate over the next 5 years to be as low as 0.1% and approximately 1% over the 30-year timeframe.[72] On December 31, 2021, investors expected the inflation rate over the next 5-years to be 2.9% and 2.3% over the 30-year timeframe. Investors' inflation expectations started to increase on February 24, 2022, when the war in Ukraine began but these expectations started decreasing by the end of March and are now about the same as before Russia invaded Ukraine.[73]



Inflation may or may not increase over the next three years, but ratepayers should not be asked to pay a premium on their utility rates now based on the possibility that inflation will remain elevated. The Commission should certainly not approve the Utilities' elevated cost

[71] WTF-01 at p. 33:17-19.
[72] WTF-01 at p. 34, Chart 5.
[73] WTF-01 at p.

requests based upon speculation that inflation may increase. Wild Tree's recommendations are based upon market-based cost of equity models that already reflects investors' expectations regarding inflation.[74]

B. WILD TREE FOUNDATION COST OF EQUITY CALCULATION METHODOLOGY

Wild Tree's expert, Aaron Rothschild, has determined the cost of equity for the average company in the Electric Proxy Group to be between 7.41% and 8.74%.[75] As shown in Table 5 below, Cost of Equity Model Results, the high-end results of the three cost of equity models, including eight variations of the CAPM, range between 7.86% and 8.99%, with an upper quartile of 8.74%.[76] The low-end results of Mr. Rothschild's three cost of equity models, including eight variations of the CAPM, range between 7.10% and 8.48%, with a lower quartile of 7.41%.

TABLE 5: COST OF EQUITY MODEL RESULTS		
DCF	**Low**	**High**
Constant Growth - Sustainable Growth	7.92%	8.02%
Constant Growth - Option-Implied Growth	8.48%	8.74%
Non-Constant Growth	8.21%	8.21%
CAPM		
Spot Market Values (Jun. 30, 2022)		
Risk Free Rate - 3-Month T Bill	7.41%	8.59%
Risk Free Rate - 30-Yr T Bond	7.98%	8.99%
3-Mo. Weighted Average (Apr. to Jun. 2022)		
Risk Free Rate - 3-Month T Bill	7.10%	7.86%
Risk Free Rate - 30-Yr T Bond	7.83%	8.45%
Outer Quartile Range	**7.41%**	**8.74%**
Midpoint of Range	**8.08%**	

Exhibit ALR-2

[74] WTF-01 at p. 34:5-8.
[75] WTF-01 at p. 11.
[76] WTF-01 at p. 11, Table 5.

1. Market Based Approach

Wild Tree's expert's recommendations were calculated as followed: the DCF, including a constant growth and a non-constant growth method and a CAPM analysis were applied to a group of similar companies ("RFC Electric Proxy Group") using data available through June 30, 2022. The models that Wild Tree's recommendations are based upon all use both historical averages and the most recently available spot market data for the inputs wherever it is possible and applicable. Wild Tree's cost of equity calculations are based upon current market prices (e.g., stocks, bonds, options), which measure investors' expectations directly, instead of relying solely on historical data and analyst forecasts.[77]

Mr. Rothschild's cost of equity models are based on established methodologies. The constant growth DCF model is the same one chosen by major financial institutions.[78] Mr. Rothschild's CAPM is based on methodologies used by Value Line, the Chicago Board of Options Exchange (CBOE), and published in peer-reviewed academic journals (e.g., The Review of Financial Studies).[79] This market-based methodology has also been recognized by state utility regulatory commissions. For example, on September 14, 2021, the Connecticut Public Regulatory Authority stated the following:

> The Authority finds Rothschild's market-based approach for determining a reasonable ROE to be credible and persuasive. Specifically, the Authority finds that the incorporation of investor market return expectations into the historically applied DCF and CAPM methodologies enables the Authority, and all docket participants, to better consider a just and reasonable rate of return based on the same prospective basis that base distribution rates are set. As such, the Authority determines that this added layer of analysis provides appropriate protection to the relevant public interests, both existing and foreseeable, pursuant to Conn. Gen. Stat. § 16-19e(a). Therefore, the Authority considered Rothschild's DCF and CAPM calculations, as outlined below, in this Decision; moreover, on a going forward basis, the Authority shall consider a similar

[77] WTF-01 at pp. 50-51.
[78] WTF-01 at p. 10.
[79] WTF-01 at p. 10.

> approach to incorporating investor expectations into the historically applied DCF and CAPM methodologies in all future rate proceedings.[80]

In September 2021, the South Carolina Supreme Court stated the following in upholding a cost of capital decision of the Public Service Commission of South Carolina:

> The PSC further found Rothschild to be the most credible witness, placing special emphasis on the fact that his analysis "was unique in that he included the use of both historical and forward-looking, market-based data." The PSC explained Rothschild's results from his three chosen analytical models "provide[d] an ROE in the range of 7.46% to 8.75%." Noting it was "[c]onsidering the quality of service issues known to exist with Blue Granite," the PSC concluded the "recommended ROE of 7.46% proposed by witness Rothschild" was appropriate.[81]

2. Proxy Group

The proxy group used in Wild Tree's expert's cost of equity calculation - the RFP Electric Proxy Group - consists of 26 publicly traded electric utility companies. This proxy group meets the Commission screens for selecting a comparable proxy group, excluding companies that: (1) do not have investment grade credit ratings; (2) do not have a history of paying dividends; and, (3) are undergoing a restructure or merger.[82] These companies are all in the Value Line electric industry classification, have operational characteristics similar to the Applicant utilities, and are exposed to comparable risks.[83] This proxy group was also used to streamline the Commission's review by using a proxy group that is the same as one of the proxy groups used by Dr. Villadsen for SCE and essentially the same as Dr. Vilbert for PG&E.[84]

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[80] Connecticut Utilities Regulatory Authority, *Proposed Interim Decision of the Connecticut Utilities Regulatory Authority, Docket No. 17-10-03RE11* (September 14, 2021) at p. 21. (Note, this case was ultimately settled).
[81] *In re Blue Granite Water Co.* (S.C. 2021) 434 S.C. 180, 191.
[82] See D.19-12-056 at p. 16.
[83] WTF-01 at pp. 54-58.
[84] The RFP Proxy Group and Dr. Villadsen's proxy group does include Edison International but Dr. Vilbert includes Edison International in his proxy group. All other companies in each of these proxy groups are the same.

The utilities witnesses have not selected proxy groups that meet the Commission standards. The Commission should disregard any conclusions that Utility witnesses draw from proxy groups that do not meet the Commission screens or apply additional unjustified screens, including the groups designed by Dr. Villadsen and Dr. Vilbert and Dr. Coyne. While Dr. Vilbert and Dr. Villadsen do each use an appropriate proxy group, they also rely upon other inappropriate proxy groups.

Dr. Vilbert describes an additional proxy group he created from "a sample of regulated companies from two additional industries: gas local distribution companies (LDC) and water distribution utilities (Gas LDC and Water Sample) to provide additional information on the cost of equity for highly regulated, capital- intensive companies."[85] In the last cost of capital decision, Dr. Vilbert made a similar attempt for PG&E to form a proxy group from "companies in capital intensive, network industries (CINI), and provided ROE estimates for subsets of the CINI Sample: regulated electric utilities; regulated water and gas local distribution utilities; non-electric utilities; and, a non-regulated group of CINI companies."[86] The Commission found, "We agree that PG&E's inclusion of CINI companies was inappropriate and counter to established policy for developing a proxy group of comparison companies."[87]

Dr. Villadsen also created an inappropriate proxy group for SCE composed of natural gas or water services companies. There was no support for her use of natural gas and water companies in the last cost of capital decision. Instead, the Commission concluded as a matter of

[85] PGE-01 at p. 2-2.
[86] D.19-12-056 at pp. 16-17.
[87] D.19-12-056 at pp. 16-17.

law, that "Value Line electric industry classifications should continue to be used in ROE proceedings where financial models require the use of a proxy group."[88]

Mr. Coyne relies entirely upon a proxy group of 20 companies subject to screening additional to the Commission's standards, as SDG&E did in the last cost of capital proceeding where the Commission found, "we agree that the applicants selectively established a proxy group of companies and will review the model results with this in mind."[89]

3. Discounted Cash Flow Model

Wild Tree's expert calculated cost of equity both using the constant growth form of the DCF method, which determines growth based on the sustainable retention growth procedure, and a non-constant growth DCF method. The constant growth form DCF analysis indicates a COE range of between 7.92% and 8.02% for the RFC Electric Proxy Group.[90] The results of the non-constant growth DCF method indicate a COE of between 8.21% and 8.21% for the RFC Electric Proxy Group.[91] Mr. Rothschild's constant growth DCF model is used by major financial institutions. For example, J.P. Morgan Chase uses the sustainable growth form of the DCF method as Mr. Rothschild and Principles of Corporate Finance, a leading financial textbook used in business schools and investment banks around the world, recommends using the very same method Mr. Rothschild uses to calculate the cost of equity for regulated energy utility

[88] D.19-12-056 at p. 53 (Conclusion of Law 10).
[89] D.19-12-056 at p. 20.
[90] WTF-01 at Exhibit ALR-3, p. 1.
[91] WTF-01 at Exhibit ALR-3, p. 3 and Exhibit ALR-3, p. 4.

companies.[92] Additional details on Mr. Rothchild's DCF methodology are available in his direct testimony.[93]

4. Capital Asset Pricing Model

The CAPM predicts that for a given equity security, the cost of equity has a positive linear relationship to how sensitive the stock's returns are to movements in the overall market (e.g., S&P 500). The results of Mr. Rothschild's CAMP analysis are shown in Table 10 and 11.[94]

Weighted Average CAPM

TABLE 10: CAPITAL ASSET PRICING MODEL (CAPM) - INDICATED COST OF EQUITY
WEIGHTED MARKET DATA - All Inputs Weighted From April to June 2022

	3-Month Treasury Bill		30-Year Treasury Bond	
	Historical Blended Beta	Forward Beta	Historical Blended Beta	Forward Beta
Risk-Free Rate	1.32%	1.32%	3.07%	3.07%
Beta	0.66	0.58	0.66	0.58
Risk Premium	9.89%	9.89%	8.14%	8.14%
CAPM	7.86%	7.10%	8.45%	7.83%

Source: Exhibit ALR-4, page 1

Spot CAPM

TABLE 11: CAPITAL ASSET PRICING MODEL (CAPM) - INDICATED COST OF EQUITY (SPOT)
SPOT MARKET DATA - All Inputs Based on Last Available Data as of June 30, 2022

	3-Month Treasury Bill		30-Year Treasury Bond	
	Historical Blended Beta	Forward Beta	Historical Blended Beta	Forward Beta
Risk-Free Rate	1.72%	1.72%	3.14%	3.14%
Beta	0.72	0.60	0.72	0.60
Risk Premium	9.50%	9.50%	8.08%	8.08%
CAPM	8.59%	7.41%	8.99%	7.98%

Source: Exhibit ALR-4, page 5

[92] WTF-01 at p. 20.
[93] WTF-01 at pp. 58-73.
[94] WTF-01 at p. 88, Table 10 and Table 11.

A security's market sensitivity is measured by its beta - the covariation of the return on an individual security with the return on the market portfolio. The higher the beta of a stock, the higher the company's cost of equity—the return required by the investor to invest in the stock. There are three inputs into CAPM modeling – risk free rate, beta, and equity risk premium.

a. Risk Free Rate

Mr. Rothschild's short-term risk-free rate is based on the yield of 3-month U.S. Treasury bills and long-term risk-free rate is based on the yield of 30-year U.S. Treasury bonds. In line with Mr. Rothschild's spot and weighted average CAPM approaches, both spot market values as of June 30, 2022 and weighted averages over the 3 months ending on that date are used for these two yields.[95] U.S. government bonds are reasonable to use as a risk-free rate because they have a negligible risk of default. Neither 3-month Treasury bill or 30 year Treasury bill is a perfect fit and so Mr. Rothchild considered both as proxies for the risk-free rate to establish a range for his CAPM results.[96]

When looking for a security to calculate an estimate of the risk-free rate, it could be argued that it is appropriate to find one with a term or maturity that best matches the life of the asset being financed. In that sense, the 30-year Treasury bond yield can be argued to be ideal for this specific application. However, it is equally important to find a security that has a beta coefficient with the overall market as close to zero as possible, because by the very definition of the risk-free rate in the CAPM model, its movements should have no correlation to the movements of the market. And this is where the problem with the 30-year Treasury bond yield arises, as it has an established non-zero beta. The 3-month Treasury bill yield has a

[95] WTF-01 at p. 76.
[96] WTF-01 at pp. 77-78.

considerably lower beta, and therefore is superior in that respect to the 30-year Treasury bond yield.[97]

b. Beta

Wild Tree witness Aaron Rothschild provided a robust beta analysis that includes historical betas of 6 months, 1 year, 1.25 years, 1.5 years, 2 years, and 5 years; option-implied betas, which are forward-looking market-based betas based upon stock options; and a hybrid beta that combines the option-implied betas and historical betas. Traditionally, the betas used in CAPM calculations are calculated from historical returns. An alternative way to calculate betas is to incorporate investors' return expectations by calculating option-implied betas. However, it is also possible to calculate betas based on investors' expectations of the probability distribution of future returns. This probability distribution of future returns expected by investors can be calculated based on the market prices of stock options. Mr. Rothschild uses both historical and option-implied betas in his CAPM analysis. He uses option-implied betas in the CAPM analysis because, among other reasons, studies have found that betas calculated based on investor expectations (option-implied) provide information regarding future perceived risks and expectations. The betas published by Value Line are not only backward looking, they can be more than 3 months old. These option-implied betas can be a very useful measure of investor forward-looking sentiment and their expectations regarding betas and perceived risk.[98]

Since the cost of equity should be based on investor expectations, Mr. Rothchild uses two betas: a "Historical Blended Beta" takes into consideration short- (6-month), medium- (2-year), and long-term (5-year) time historical horizons, with a weighing of 50%, 30%, and 20%,

[97] WTF-01 at pp. 77-78.
[98] WTF-01 at pp. 78-79.

respectively; a Forward Beta" is based on forward-looking investor expectations of non-diversifiable risk. "Hybrid Betas" refer to a 50% weighing of Historical Blended Betas with a 50% weighing of Forward Betas.[99]

i. Option-Implied Betas Are State-of-the-Art

Option-implied forward-looking betas are a core component of the CAPM method Mr. Rothschild has used in almost two dozen cost of capital proceedings in seven states since 2018.[100] Mr. Rothschild's option-implied betas are based on methodologies used by the Chicago Board of Options Exchange and published in peer-reviewed academic journals. Mr. Rothschild's testimony includes an appendix with technical detail regarding the methodology for calculating historical and option-implied betas.[101] Wild Tree also provided to the Utilities all information and data used in Mr. Rothschild's beta calculations.

Mr. Rothschild's methodology has been well received by utility regulatory commissions. For example, on April 9, 2020, the Public Service Commission of South Carolina stated the following:

> Amongst the three witnesses, Consumer Affairs Rothschild's approach was unique in that he included the use of both historical and forward-looking, market-based data in his analysis. Based on the testimony and facts presented, the Commission therefore adopts the recommended ROE of 7.46% proposed by witness Rothschild.[102]

This decision, which adopted Mr. Rothschild's ROE recommendation based on option-implied betas, was subsequently upheld by the South Carolina Supreme Court in September 2021.[103]

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[99] WTF-01 at pp. 78-79.
[100] WTF-01 at p. 81.
[101] WTF-01 at Appendix C.
[102] Public Service Commission of South Carolina, Docket No. 2019-290-WS, *Order Ruling on Application for Adjustment in Rates, Order No. 2020-306* (April 9, 2020) at p. 43.
[103] *In re Blue Granite Water Co*. (S.C. 2021) 434 S.C. 180.

In September 2021, the Connecticut Public Regulatory Authority found that because Mr. Rothschild's approach allowed the Authority to "better consider a just and reasonable rate of return" it would incorporate "investor expectations into the historically applied DCF and CAPM methodologies in all future rate proceedings."[104]

ii. The Commission's Review is Best Served by a Range of Analyses

Dr. Vilbert questions the use of 6-month betas: "Mr. Rothschild's emphasis on the most recent six months of data is highly questionable, because it can reflect temporary fluctuations and fails to show longer term trends that are more appropriate for use in setting a three-year cost of capital using TY 2023."[105]

Mr. Rothschild provides extensive information in his testimony on why six months betas are valuable to measure recent and current market dynamics.[106] Mr. Rothschild provides a wide range of both historical and forward looking betas, unlike the Utility witnesses that select one historical beta that best fits the narrative their client prefers. Mr. Rothschild provides historical betas over different time periods and hybrid betas, which take into consideration 6-month, 2-year, and 5-year historical betas along with forward-looking, option-implied betas.

When one has the full complement of data before them, it is clear that, completely contrary to Dr. Vilbert's claims, it is the 5 year historical betas that are problematic as the 5 year

[104] Connecticut Utilities Regulatory Authority, *Proposed Interim Decision of the Connecticut Utilities Regulatory Authority*, Docket No. 17-10-03RE11 (September 14, 2021) at p. 21. (Note, this case was ultimately settled).
[105] PGE-02 at p. 2-33:9-13.
[106] WTF-01 at pp. 151-156.

betas are still being impacted by the short-term market movements from the early stages of the COVID-19 pandemic.

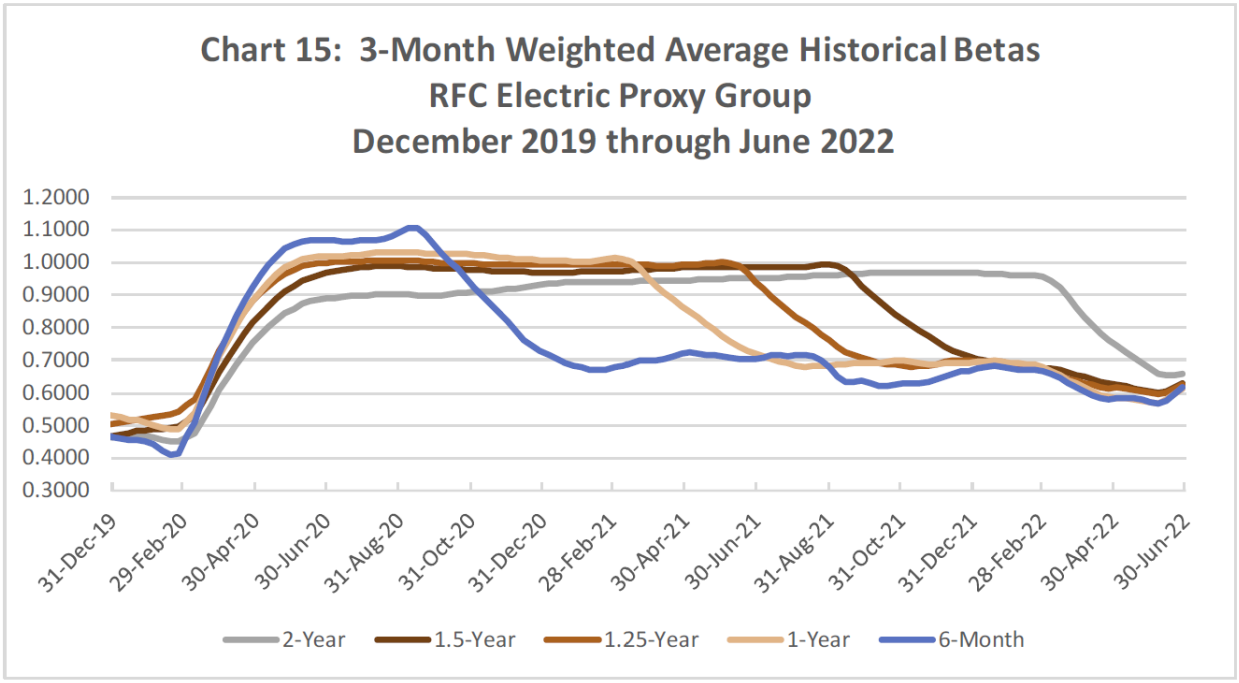
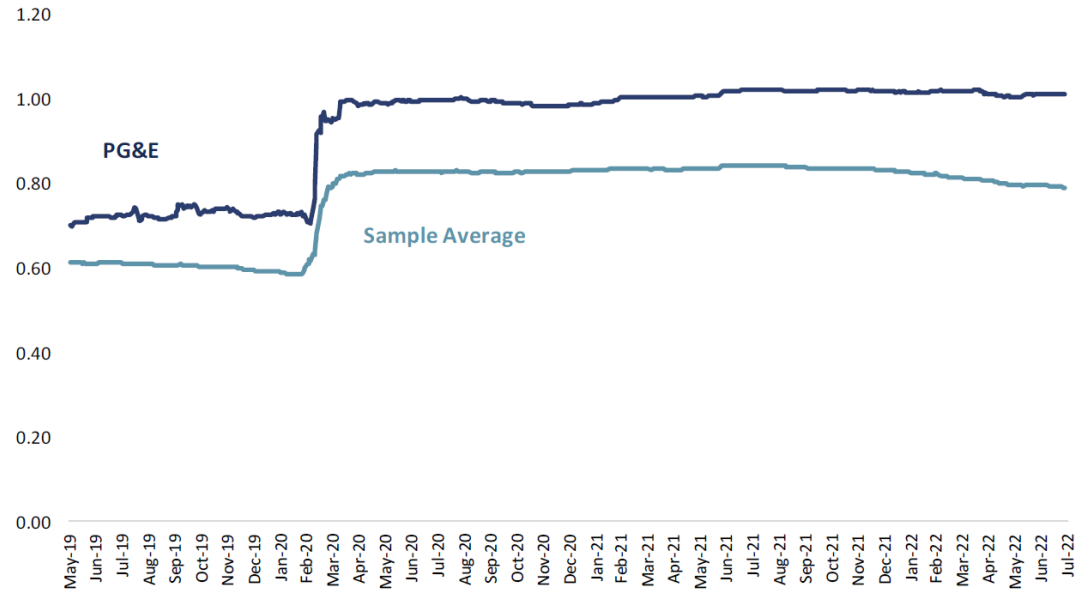


FIGURE 2-3
PG&E AND PROXY GROUP HISTORIC BETA



Note: Source: Bloomberg, data as of July 29, 2022.

As can be seen in Wild Tree Foundation's Chart 15[107] and PG&E's Figure 2-3,[108] it is the 5-year historical betas that are still influenced by the March 2020 market upheaval that occurred at the outset of the COVID-19 pandemic despite the fact that this upheaval was short-lived and conditions are presently very different than during that short time period. The 5-year betas change more slowly than those calculated using shorter time horizons such as 6 months and take longer to reflect changing market conditions and dynamics. The weight of five years of data that includes the early impacts of the pandemic makes the 5-year betas inaccurate and irrelevant for the purposes of this proceeding. A short-lived market upheaval in March 2020 should not be influencing the determination of cost of capital for 2023-2026.

iii. Option-Implied Betas Are Based upon Widely Available Market Data

Dr. Vilbert and Mr. Coyne claim that "that investors don't perceive any value to option-implied betas"[109] and "Mr. Rothschild provides no evidence that investors rely on option-implied betas."[110] Dr. Vilbert claims that the fact that there is not a packaged, ready-made source for options implied betas means that investors don't want them and they must then be useless. Dr. Vilbert inaccurately asserts that, "Because option-implied betas are not available from any commercial providers, all participants in a regulatory proceeding would have to

[107] WTF-01 at p. 116, Chart 5.
[108] PGE-02 at p. 2-12, Figure 2-3.
[109] PGE-02 at p. 2-35:18-19.
[110] SDGE-08 at p. 38:2-3.

calculate their own estimates, which would require acquiring data on options from a commercial provider for a fee and creating a program to filter the data and calculate the options."[111]

In fact, the data used in Mr. Rothschild's analyses is available to any investor that has access to the internet. No subscription is required to obtain stock prices or stock option prices on Yahoo Finance. Current stock option prices are widely available for free on websites like Yahoo Finance. Historical stock option data is available for free for investors with a brokerage account at companies like TD Ameritrade. On the other hand, a subscription is required to obtain the betas used by the Utilities such as the Value Line's published 5-year historical betas. Thus the market-based data used in Mr. Rothschild analyses are more widely available than the data used by the Utility experts.

Furthermore, the fact that an expert witness has acquired data, created a program to analyze the data, and calculated betas – as Mr. Rothschild and his team at Rothschild Financial have - shows that the expert is actually willing to do the work to provide the Commission evidence upon which it can make an informed decision. On the other hand, the fact that a witness paid a commercial service to download a table of already calculated betas and then cut and paste that table into their testimony demonstrates that the witness is willing to do the bare minimum. As Dr. Vilbert points out, billions of dollars are at stake for investors and an expert that is willing to actually do the work is the expert one wants under such conditions.

Mr. Coyne claims that "While the underlying options that Mr. Rothschild is relying on are certainly market-based, there is no evidence that the Beta calculations that Mr. Rothschild performs reflect investor expectations."[112] The pre-packaged, historical betas that the Utilities

[111] PGE-02 at p. 2-35:22-27.
[112] SDGE-08 at p. 38:3-5.

rely upon, by design, would not reflect investor expectations because expectations reflect what is expected in the future where historical describes what happened in the past. As backward looking, historical betas are unlikely to accurately measure current investors' expectations regarding utility betas in particular and risk and return in general. It is inappropriate to rely exclusively on backward looking measures when data regarding current investor expectations is available. The purpose of this proceeding is to determine the current, market-based cost of equity and Mr. Rothschild's testimony provides substantial value to this endeavor. Ultimately, Mr. Rothschild provides far more information to the Commission than the Utility witnesses and the more valid tools used, the better that the Commission can confirm ranges of reasonableness to ensure a more accurate result.

iv. The Use of Spot Data Provides the most up to date capital information and The Potential Risks with using spot Data Can be Managed

Dr. Vilbert alleges that for Mr. Rothschild's option-implied betas, because there is a complete data set for "only" 16 companies and because "there are between 2 and 5 companies that come in or out for the data set each week" there "is not a proxy group; it is a random collection of unreliable data."[113] Dr. Vilbert explained himself in PG&E's 2021 off-cycle cost of capital application that the reason that some weekly data for some companies is not included is because there is not enough data to calculate betas for a given week for a given company and thus it is eliminated from inclusion using the same process as the Chicago Board of Options uses to calculate the VIX Index, which Dr. Vilbert himself relies upon in his testimony.

Q Is it possible that those companies you're listing did not trade enough options?

[113] PGE-02 at p. 2-36:25-32.

> A Yes, I'm sure that's why the beta estimates are missing, because Mr. Rothschild requires a certain amount of data to be able to estimate a beta, an option-implied beta for the company, and if he does not have sufficient evidence, he doesn't report a six-month beta.
>
> Q And you said that you have reviewed the work papers, and I assume also the appendix explaining the beta calculation methodology. So did you read that Mr. Rothschild uses the same filtering process as the Chicago Board of Options?
>
> A Yes, that's what I understand he does.
>
> Q And the Chicago Board of Options uses the same -- Mr. Rothschild uses the same process as the Chicago Board of Options uses to calculate the VIX Index, which would include eliminating the inclusion where there are not enough printed options?
>
> A That's correct, but the difference is that the CBOE is calculating a VIX Index for the S&P 500, for which there are many more options traded than there are for individual securities in the Electric Utility Proxy Group.· So Mr. Rothschild is facing a problem, and that is there's insufficient data for some companies in some weeks to calculate a beta using his methodology.[114]

Further, Dr. Vilbert admitted on the stand during the utilities 2021 off-cycle cost of capital applications proceeding that a proxy group of 20 companies "can be sufficient under certain circumstances."[115] In that case, and in this case, SDG&E's witness Coyne uses a proxy group of 20 companies. In Dr. Vilbert's own cost of capital testimony before the Commission for water companies, his proxy group is 8 to 10 companies.[116] Water proceeding proxy groups are only comprised of 7 companies and gas proceeding proxy group 10 companies. Dr. Vilbert's testimony is thus that Mr. Rothschild's methodology of not calculating betas where this is insufficient data and using a proxy group of 18 – 22 is unacceptable, only so long as Mr. Rothschild is the expert conducting the analysis.

[114] WTF-02 at p. 71:9 – 72:12.
[115] WTF-02 at p. 81:17-18.
[116] WTF-02 at p. 81:20 – 82:9.

Dr. Vilbert and Mr. Coyne also question the credibility of Mr. Rothschild's option-implied beta analysis because "Sometimes the minimum betas are negative, which represents a meaningless value for a utility stock"[117] and "relying on beta coefficients that estimate a negative cost of equity for proxy companies raises significant questions about the reliability of the methodology."[118] Mr. Coyne, claims that weekly volatility and an example of volatility in the weekly results of one proxy group company "is concerning."[119]

As shown in Mr. Coyne's Rebuttal Exhibit JMC-7, Mr. Rothschild's CAPM results for individual proxy group companies, 2 out of 208 betas (less than 1 percent) resulted in negative values.[120] Mr. Rothschild uses both historical averages and the most recently available spot market data for the inputs wherever it is possible and applicable. The benefit of using spot data – data of a specific date - is that it provides the most up to date capital information.[121] While it may be tempting to find a more stable value based on historical averages that are not overly influenced by short-term fluctuations in capital markets, this approach fails to provide a complete picture and may indeed provide inaccurate information as to where a given value is more likely to be in the future.[122] This is a broad and generally accepted principle, as made clear in the following example: If Company A's stock price were to go up linearly over the course of one year from $50 to $100, its average stock price over that year would be $75. If Company B's stock price declined linearly from $100 to $50 over the same year, it would have the same exact average stock price of $75. But most people would agree that predicting both stock prices at $75

[117] PGE-02 at p. 2-37:6-7.
[118] SDGE-08 at p. 38:21-22.
[119] SDGE-08 at p. 39.
[120] SDGE-08 at Rebuttal Exhibit JMC-7.
[121] WTF-01 at p. 10n10.
[122] WTF-01 pp. 52-53.

over the near future would be overly simplistic and leave readily accessible forecasting data unused. Without relying on any additional data, at the very least, it would stand to reason that in the near future, Company A's stock price is more likely to be between $75 and $100 than Company B's stock price, and that Company B's stock price is more likely to be between $50 and $75 than Company A's stock price. These observations cannot be made by looking at the yearly averages alone and must take the most recent data into consideration.[123] It is important to consider both averages and recent market data for forward-looking analyses. That is precisely Mr. Rothchild's approach when using market data that are expected to continue to fluctuate, such as stock prices, dividend yields, betas, and market risk premia.

To smooth out any random and short-term movements in the stock market that may not be representative of the future Mr. Rothschild considers average data over a longer time period, in this case the previous 3 months from the spot market date of June 30, 2022.[124] The 2 out of 208 negative results are such random and short-term movements in the stock market that may not be representative of the future that Mr. Rothschild fully addresses in his testimony. Mr. Coyne suggests that Mr. Rothschild should have removed the negative data points from his analysis[125] – essentially data mining for a prettier result. The process of smoothing data to make things look pretty is a common problem that leads to models that are less reliable, not more. Instead of taking this inappropriate approach, Mr. Rothschild manages the potential risks of using spot data as follows:

> Daily fluctuations in stock prices, resulting dividend yields, betas, etc., all have an impact on resulting ROE calculations, especially when using recent spot values for market data. Such is the nature of market data, which changes from day to day. This is rightfully noted as a potential risk of using spot market data, but given the stated benefits of using recent

[123] WTF-01 at pp. 52-53.
[124] WTF-01 at p. 10n4.
[125] SDGE-08 at p. 39:14-15.

> spot market data for forward-looking analyses, there are ways to address such potential pitfalls. For this reason, it is very important to establish consistent methodologies that eliminate the possibility of personal bias, especially when using spot market data. I consistently use the last trading day of the last full calendar month before my schedule preparations for all market-based spot market data and as the last day for all historical market-data averages. It is important to keep in mind that even averages fluctuate over time, and all responsible data analysts must find a consistent and reproducible way to "freeze time" to work with such fluctuations while eliminating bias. It is also important to point out once again that I use recent spot market-data to establish one benchmark for market-based inputs, which are balanced by the use of historical averages, as stated previously.[126]

In regards to the weekly results of one company, it is fully expected that some companies would have negative correlation with the capital markets for brief periods of time during times of extreme volatility. In fact, it would be surprising if options indicated that there were never any companies that had a negative correlation with the market. Neither Mr. Rothschild, nor any of the witnesses in this proceeding rely on the results of any specific company but instead use a proxy group because results of individual companies can sometimes be nothing more than noise in the market.

It is worth noting, if the 2 negative betas were removed from Mr. Rothschild's calculations, the average of his eight CAPM results would only change from 8.03% to 8.04% and his resulting Cost of Equity recommendation would not change from 8.08%.[127] In addition, in Dr. Vilbert's own analysis, there are extremely drastic changes in his historical betas over a week's time. Figure 2-2 of Dr. Vilbert's testimony shows that his 5-year historical betas increased from 0.6 to over 0.8 in March 2020 and PG&E's beta increases from about 0.7 to over 1 at the same time.[128]

[126] WTF-01 at p. 53:11 – 54:6.
[127] SDGE-08 at Rebuttal Exhibit JMC-7, WTF-01 at Exhibits ALR-1 – ALR-5.
[128] PGE-01 at p. 2-11, Figure 2-2.

5. Equity Risk Premium

Traditionally, the risk premium used in CAPM calculations is derived from historical returns and/or equity analyst projections. The former approach is historically accurate but does not take into account investors' expectations for future market risks and returns. The latter approach is based on analyst projections, which are not market-based and do not reflect current investor expectations. A superior market-based way to calculate the equity risk premium is to use option-implied return expectations, which is the approach Mr. Rothschild has used.

III. RISK (SCOPING ISSUE 4)

A. INCLUSION OF WILDFIRE RISK PREMIUMS IN THE UTILITIES' REQUESTED ROES UNDERMINES THE CREDIBILITY OF THE UTILITIES' REQUESTS

The Utilities have all included wildfire risk premium in their requested ROEs. Given the passage of SB 901 and AB 1054; availability of wildfire insurance fund monies; successful applications for securitization of wildfire victim costs by PG&E, and wildfire mitigation costs by SCE and PG&E; granting of safety certificates to all Utilities; and Commission finding that "the passage of AB 1054 and other investor supportive policies in California have mitigated wildfire exposure faced by California's utilities," the financial risk associated with electric utility-ignited fires has decreased for the Utilities. Yet, all Utilities are requesting increases in ROE based in part upon wildfire risks. Having been denied outright their past attempts at a wildfire adder and wildfire risk premium, the IOUs are now seeking a wildfire adder/premium but dressing it up as some other "unique" risk to California electric utilities. For example, PG&E states: "Investors face uncertainty from exposure to liability and cost recovery that has been exacerbated by

extreme weather events caused by climate change, chief among them being prolonged drought and the now year-round threat of catastrophic wildfires. These factors have increased the risk profile of California utilities and made attracting capital more costly.[129]

Given the Commission's clear prohibition of wildfire risk premium in the last cost of capital decision; significant regulatory actions that have decreased risk of wildfire liability for the Utilities since 2019; and the Utilities failure to identify exactly how much wildfire risk premium accounts for in their expert recommendations, the Utilities' experts ROE recommendations lack credibility and should be given little weight.

The electric Utilities attempted in the last cost of capital application to account for claimed increased wildfire risk by requesting wildfire adders. The Commission roundly rejected this attempt, finding a separate wildfire adder to not be within the scope of the proceeding.[130] Upon a ruling by the Administrative Law Judge directing supplemental testimony on how the passage of AB 1054 fundamentally transformed the financial risks discussed in length in the Applicants' testimony, the electric Utilities changed their requested ROEs. "SCE, SDG&E, and PG&E all significantly lowered their requested total ROE and removed requests for a specific wildfire adder, although the revised requested ROE for each remained above their initial base ROE requests . . ."[131] In effect, while removing a percentage labeled wildfire adder, the Utilities still attempted to include a wildfire risk premium in their requests. The Commission also rejected this attempt:

> Regarding implementation risk relating to the application of a new prudency standard, this does not introduce a new risk but rather a solution that is expected to limit utilities' financial exposure to wildfire liabilities in the future. Shareholders are only required to repay the fund for imprudent wildfire costs, and only up to a cap. Undisputed in this

[129] PG&E Application at p. 2.
[130] D.19-12-056 at p. 27.
[131] D.19-12-056 at p. 28.

> proceeding is the notion that the investor owned utilities should not be awarded with an increased ROE based on risk that is associated with imprudent management. The residual risk for shareholders of financial losses due to catastrophic wildfires after the signing of AB 1054 is for imprudent actions taken by the IOUs that resulted in a catastrophic wildfire. The standard set in Bluefield and Hope is that investor owned utilities should not be rewarded with an ROE that is inflated due to imprudent actions. Further, while AB 1054 did not modify the common law of inverse condemnation, the Commission may now allocate a utility's allowed and disallowed wildfire costs and expenses from wildfires in full or in part taking into account exacerbating factors. Finally, arguments positing that the fund may be exhausted before 2035 are premature; there is no evidence that the long-term durability of the fund poses residual risks today that the Commission need address in determining ROE for the 2020 test year cost of capital.
> We find that the passage of AB 1054 and other investor supportive policies in California have mitigated wildfire exposure faced by California's utilities. Accordingly, the Commission will not authorize a specific wildfire risk premium in the adopted ROE.[132]

The Utilities have again attempted in this cost of capital cycle to request increased ROEs based on wildfire risk premiums. The only manner in which the Utilities have identified how much of their requests might be result of wildfire risk premium is by claiming that ROEs should be set at the top of the witnesses' ranges:

> SCE: "I recommend SCE be allowed an ROE at the upper end of the reasonable range and a regulatory equity percentage of 52 percent. The reasonable range for a sample of electric utilities is 10.0 to 10.75 percent before any consideration of company or jurisdictional risk. Based on the business risks of SCE and the *inherent risks in California*, I recommend that SCE be placed at the upper end of the reasonable range. The recommendation is supported by the *asymmetric risk SCE faces from wildfire risks, the risks associated with the implementation of AB 1054*, the very large deferral balances, and relatively low credit metrics."[133]
>
> SDG&E "In addition to establishing the range of ROE results, I also considered SDG&E risks compared to the proxy utilities and conclude that SDG&E is above average risk and that it would be reasonable for SDG&E's ROE to be set at the top of the range, *given the wildfire risk alone."*[134]
>
> PG&E: "My testimony estimates the cost of equity for PG&E, and I recommend an ROE that is at the top of the range for the Electric Utility Sample consistent with the Company's higher than average risk compared to the sample companies." PG&E at p. 2-20:25 - 2-21:1. "Furthermore, PG&E faces *unique risks as an electric utility operating*

[132] D.19-12-056 at pp. 36-37.
[133] SCE-02 at p. 54:9-16 (emphasis added).
[134] SDG&E-04 at p. 68:17-21 (emphasis added).

> *in California*, which should be considered by the CPUC in setting the authorized ROE. Specifically, as described in Chapter 1 – Introduction and Cost of Capital Proposal (M. Becker), PG&E has *additional asymmetric risk due to residual wildfire risk . . .*"[135]

The Utilities' opaqueness as to what exactly comprises the wildfire risk premiums throws all of the Utilities recommendations into question and undermines the credibility of the utility witnesses.

AB 1054 provides the Utilities significant protections from actually having to pay for most damages caused by future fires, even those caused by utility negligence, recklessness, or violations of the law. But, paradoxically, now that the Utilities have a ratepayer-funded "insurance" fund to rely upon for costs of wildfire they cause and a presumption of innocence provided by a safety certificate, they are claiming that they require increased ROE because of "implementation and fund depletion risk associated with Assembly Bill ("AB") 1054"[136] and "ongoing uncertainty likewise remains regarding how the newly established Office of Energy Infrastructure Safety will implement the safety certification review process upon which many of the law's benefits depend."[137] There is no such uncertainty, all the Utilities were granted safety certificates for 2019, 2020, and 2021, even PG&E who continues to ignite catastrophic fires. AB 1054 provides significantly greater protection for the IOUs than previously existed and thus is a reason for decreased, not increased, risk, as the Commission itself has made clear in the last cost of capital decision.[138] The billions in securitized bonds that have been granted to PG&E and SCE for wildfire victim claim costs and wildfire mitigation costs have likewise decreased the financial risk associated with utility wildfire ignition.

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[135] PG&E-01 at p. 2-13:13-19 (emphasis added).
[136] SCE Application at p. 2.
[137] SDG&E Application at p. 14.
[138] D.19-12-056 at pp. 36-37.

However it is labeled (or not labeled) – as a wildfire adder, wildfire risk premium, unique risk, etc. – the Utilities are not justified in inflating their cost of capital requests based upon claimed increases in risk due to liability when that risk of liability has decreased, not increased, since the last cost of capital decision. At the same time, PG&E is not justified in inflating its cost of capital requests based upon increased risk caused by its own incompetence. Even if PG&E's COE has increased as a result of its imprudent and criminal management it is not justified in inflating its cost of capital and charging consumers more to compensate PG&E for its own mistakes.

B. PG&E SHOULD NOT RECEIVE A HIGHER ROE BASED UPON INCREASED RISK THAT WAS CAUSED BY IMPRUDENT AND CRIMINAL BEHAVIOR OF ITS MANAGEMENT

According to the United States Supreme Court, utility rates of return are to be determined based upon "efficient and economical management" of the utility:

> The return should be reasonably sufficient to assure confidence in the financial soundness of the utility and should be adequate, under *efficient and economical management*, to maintain and support its credit and enable it to raise the money necessary for the proper discharge of its public duties. A rate of return may be reasonable at one time and become too high or too low by changes affecting opportunities for investment, the money market and business conditions generally.[139]

The Commission has also made it clear that utilities should not be awarded increased authorized ROEs based on risk that is associated with imprudent management:

[139] *Bluefield Water Works & Improvement Co. v. Pub. Serv. Comm'n of the State of W. Va.* 262 U.S. 679, 692-693 (1923) (emphasis added).

> "However, in applying these [Hope and Bluefield] parameters, we must not lose sight of our duty to utility ratepayers to protect them from unreasonable risks including risks of imprudent management."[140]
>
> "Undisputed in this proceeding is the notion that the investor owned utilities should not be awarded with an increased ROE based on risk that is associated with imprudent management. . .The standard set in Bluefield and Hope is that investor owned utilities should not be rewarded with an ROE that is inflated due to imprudent actions."[141]

It is not uncommon for utility regulatory commissions to set a rate or rate or return at a lower level based upon imprudent management. For example, in 2021, the Supreme Court of South Carolina upheld the decision of the South Carolina Public Service Commission to set a lower ROE than requested by The Blue Granite Water Company, a water and sewer services utility due to problematic business practices.[142] "[I]n an effort to incentivize Blue Granite to improve its business practices, the PSC set a lower return on equity (ROE) than requested and allowed only certain portions of Blue Granite's requested costs, citing to the utility's known, poor reputation and service problems."[143] The problematic business practices included poor water quality, unresponsive customer service, inaccurate meter readings, billing errors, unwarranted cut-offs, and raw sewage flooding homes and, in one instance, running through an entire neighborhood, including the community park and pool.

In 2020, the State of Maine Public Utilities Commission (MPUC) reduced the Central Maine Power Company's ROE due to management inefficiency demonstrated by poor customer service. Finding that under the U.S. Constitution and state law, it has "broad authority to

[140] D.19-12-056 at p. 16.
[141] D.19-12-056 at p. 36.
[142] *In re Blue Granite Water Co.* (S.C. 2021) 434 S.C. 180.
[143] *In re Blue Granite Water Co.* (S.C. 2021) 434 S.C. 180, 186.

disallow costs or adjust rates when the Commission finds that a utility has not acted prudently," the MPUC acted on customers complaints to lower the ROE:

> [T]he Commission imposes a substantial reduction to the Company's return on common equity -100 basis points . . . This reduction exceeds any prior adjustment by the Commission to a transmission and distribution utility's return on equity due to poor management and results in an allowed return considerably below the common-equity return of any other electric utility in the country. This reduction is supported by substantial evidence of failures by CMP's management to provide reasonable and adequate customer service over recent years, and especially following the transition to its new billing system, which lead us to find that this service has been imprudent. This ROE reduction is directly tied to CMP's service quality; the adjustment will remain in place until CMP improves its performance in several specified areas of customer service over a rolling period of 18 consecutive months (measured beginning March 1, 2020).[144]

It goes without saying that these examples pale in comparison to the not just imprudent, but criminal management of PG&E. As demonstrated below, measures of risk have increased for PG&E that can be attributed to imprudent management since Fall 2017 when it caused dozens of deadly and catastrophic fires and has continued through it pleading guilty to 84 charges of manslaughter for the 2018 Camp Fire, January 2019 voluntary bankruptcy protection filing, Winter 2019 public safety power shut off debacle, and igniting the deadly Zogg Fire (2019). Since the last cost of capital proceeding, PG&E ignited the Kincade Fire (2020) and the deadly Dixie (2021) Fire and has been charged with dozens of crimes, including manslaughter, by three different counties. Most recently, on June 10, 2022, Cal Fire made public its findings that PG&E's failed vegetation management and an "excessively delayed response" were causes of the ignition and spreading of the Dixie Fire to almost 1 million acres, becoming the single

[144] Maine Public Utilities Commission, Docket No. 2018-00194, Order (February 19, 2020).

biggest fire in California history. Ratepayers should not be forced to pay for PG&E's imprudent management.

There are multiple ways in which PG&E's inefficient, uneconomical, imprudent and criminal management has created increased risk upon which PG&E is relying as grounds for what would be the highest ROE of any electric utility in the country, including the following:

1. **PG&E has an increased beta as a result of its imprudent and criminal management. PG&E relies upon beta as part of its CAPM analysis and as grounds to request an ROE at the top of its expert's range**. "As explained by Dr. Vilbert in Chapter 2, the beta estimate for the utility sample has increased. This increase in risk explains why Dr. Vilbert's ROE range for the utility sample remains the same as the range in the 2020 COC Proceeding despite lower interest rates since that proceeding. Dr. Vilbert also explains in Chapter 2 why PG&E is more risky than the electric utility sample and therefore should be placed at the top of the range, at an 11 percent ROE."[145] "Additional market evidence of PG&E's higher risk includes a higher beta estimate than the average for the Electric Utility Sample."[146]
2. **PG&E's stock price had fallen as a result of its imprudent and criminal management. "**My view that PG&E's cost of capital is substantially higher than the average electric utility and that PG&E faces substantial asymmetric risk is consistent with its depressed stock price as shown by the relative price to earnings per share ratios (P/E ratio) in Figure 2-3. Although investors can diversify their exposure to asymmetric risk, the Company cannot. One explanation for PG&E's price divergence from the industry is the ongoing unique risk it faces due to potential liabilities associated with wildfires."[147]
3. **Asymmetric risk.** PG&E claims it faces asymmetric risk due to an abstract risk of "potential liabilities associated with wildfires" and "residual wildfire risk". PG&E should not be able to charge consumers for increased risks that are attributed to actual liabilities for wildfires PG&E has caused prior to and since the last cost of capital proceeding, or

[145] PGE-01 at p. 1-10:15-1-11:3.
[146] PGE-01 at p. 2-13:8-9.
[147] PGE-01 at p. 2-13:20-26

any other risks that are inflated from PG&E's imprudent actions.

4. **Requesting top of witness's range. "**My testimony estimates the cost of equity for PG&E, and I recommend an ROE that is at the top of the range for the Electric Utility Sample consistent with the Company's higher than average risk compared to the sample companies."[148]

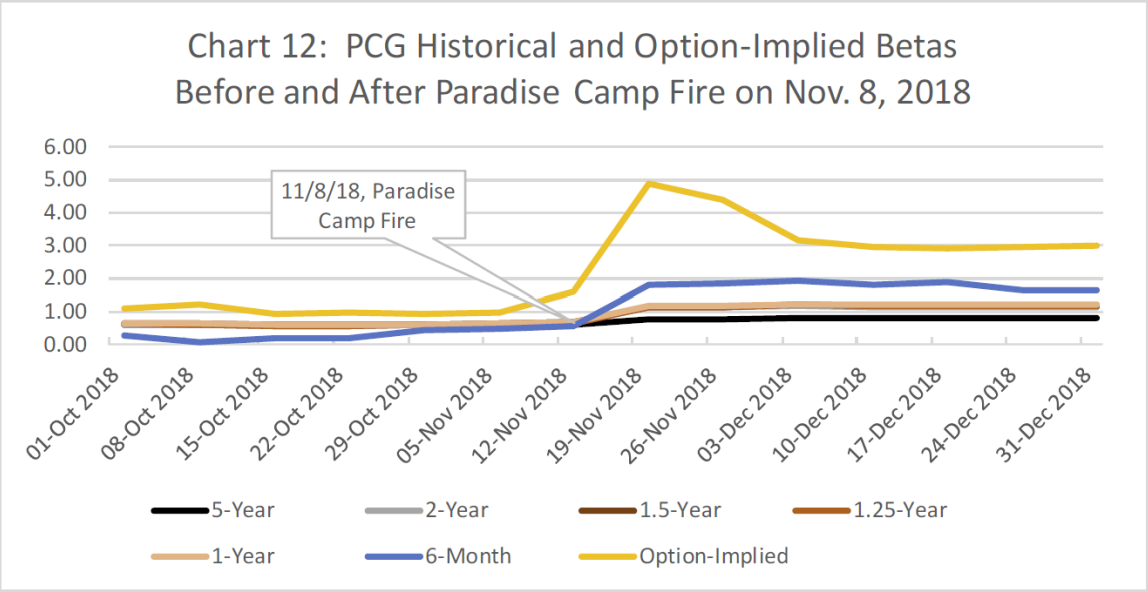
In normal circumstances, it can be difficult to separate out the impact of risk attributed to imprudent management from other risks. But, when the imprudent management is extreme, such as PG&E igniting multiple catastrophic and deadly fires, capital market data can show investors changing risk perceptions in real time as investors learn about potential financial impacts of PG&E's imprudent, and even criminal, management.[149]

Capital market data shows that investors' risk perception of PG&E increased as a result of their problematic management.[150] The Camp Fire provides a tragic example. PG&E stock price started to fall shortly after broken PG&E equipment ignited the Camp Fire on November 8, 2018 and was down over 60% by November 15, 2018.[151] PG&E's stock price has not recovered to the pre-Camp Fire levels.

Historical beta coefficients and stock option based option-implied betas show that investors quickly perceived PG&E as a much riskier company and that the effect lasted for some time. Chart 12 shows that all of PG&E's beta coefficients increased considerably in the immediate aftermath of the Paradise Camp Fire as it became clear to investors that the fire was a result of poor company management.[152]

[148] PGE-01 at p. 2-20:25 -2-21:1.
[149] WTF-01 at p. 90.
[150] WTF-01 at pp. 90-92.
[151] WTF-01 at p. 91.
[152] WTF-01 at p. 91, Chart 12.

Option-implied betas are an immediate reflection of investor sentiment and risk perception. They don't carry the weight of historical data and will change immediately if investors' risk perceptions change. Option-implied betas are especially effective at measuring investors changing risk perceptions after a significant event, such as the Camp Fire, that fundamentally change a company's risk characteristics in a short period of time. As shown on Chart 12, option-implied betas shot up from below 1.00 in the weeks before the fire to a peak of almost 5.0 on 7 November 20, 2018 after the fire.



By December 2018, PG&E's option-implied betas settled to about 3.0, indicating that investors' risk perceptions remained significantly elevated compared to other electric utilities which almost always have option-implied and historical betas of less than 1.0.[153]

Historical beta coefficients with longer horizons (e.g., five years) change more slowly than those with shorter time horizons (e.g., six months), but after the fire, all historical beta coefficients showed a significant increase. As shown in Chart 12, in the six weeks before the

[153] WTF-01 at p. 91.

fire, the average of PG&E's historical beta coefficients ranged between 0.53 and 0.65, very much in line with its proxy group peers. In the six weeks after the fire, the average of PG&E's historical beta coefficients ranged between 1.20 and 1.26, practically doubling. The significant increase in all of PG&E's beta coefficients around the Camp Fire did not occur for the RFC Electric Proxy group on average.[154] This indicates that the elevated betas are a direct result of the fire and the poor management that was determined to be its cause as opposed to broad underlying market conditions.

C. MARKET DATA DEMONSTRATES THAT INVESTORS DO CONSIDER PG&E RISKIER AS A RESULT OF ITS IMPRUDENT AND CRIMINAL MANAGEMENT BUT DO NOT CONSIDER SCE OR SDG&E TO BE RISKER THAN OTHER COMPARABLE ELECTRIC UTILITIES

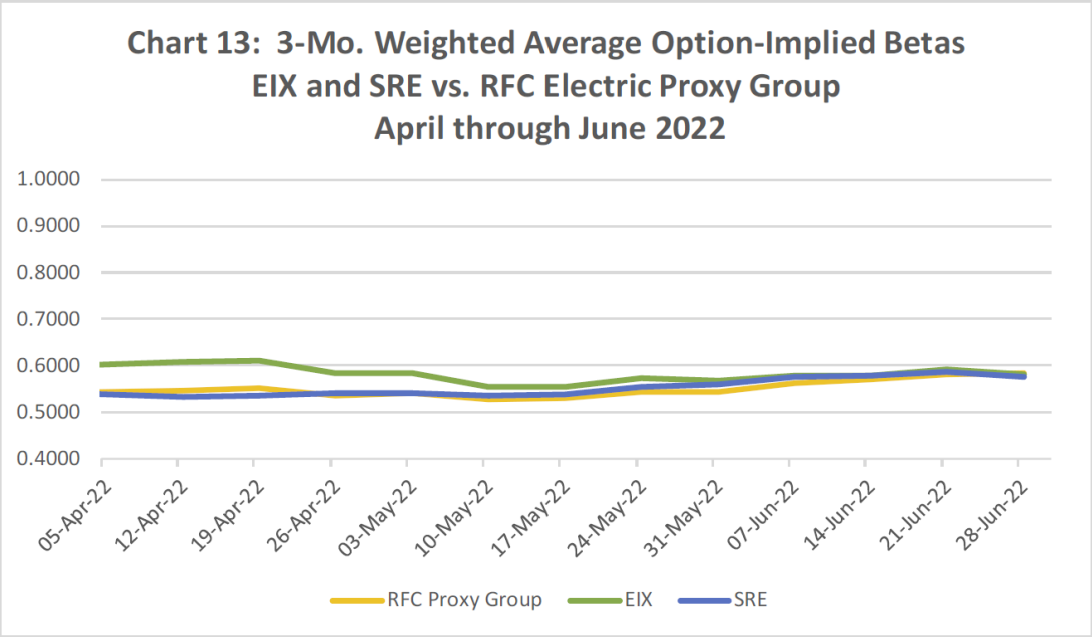
PG&E's beta coefficients remain significantly above those of SCE (EIX), SDG&E (SRE), and the rest of the electric proxy group, indicating that its risk profile is higher than the average of the proxy group.[155] But, this does not mean its authorized roe should be higher than other electric utility companies. While PG&E's beta coefficients remain elevated, indicating a higher risk profile and therefore a higher COE, PG&E's elevated beta coefficients are a direct result of imprudent management and therefore do not warrant a higher authorized ROE. Market data shows that investors considered PG&E to be a much riskier company shortly after the Camp Fire broke out. As elaborated upon above, the Supreme Court and the Commission have made clear that consumers should not have to pay for increased capital costs caused by inefficient, uneconomic, imprudent company management.

[154] WTF-01 at pp. 91-92.
[155] WTF-01 at pp. 92-93.

Market data does not indicate that EIX and SRE are riskier than the average electric utility company.[156] EIX and SRE's witnesses use their own speculations to claim that investors perceive unique risks related to EIX and SRE and that they should therefore receive a higher authorized ROE. This is problematic because investors may or may not see these risks the way the witnesses claim. The best way to measure the risks perceived by investors is to look directly at market data such as stock and stock option prices.

The options market indicates that investors do not currently perceive a higher level of risk for EIX or SRE as compared to the RFC Electric Proxy Group on average. Options provide two different measures of risk - option-implied betas measure the expected correlation of future movements of a stock as compared to the market at large, option-implied skewness measures investor-perceived downside risk for the underlying security, be it a particular stock or a market index. Option-implied betas and skewness both reflect all publicly-available information and elements that affect risk, positively or negatively, whether specific to a particular company or related to overarching market conditions, making them ideal for measuring true investor sentiment. Chart 13 shows 3-month weighted average option-implied betas for EIX, SRE, and the RFC Electric Proxy Group from April to June 2022.[157]

[156] WTF-01 at pp. 95-98.
[157] WTF-01 at p. 97, Chart 13.

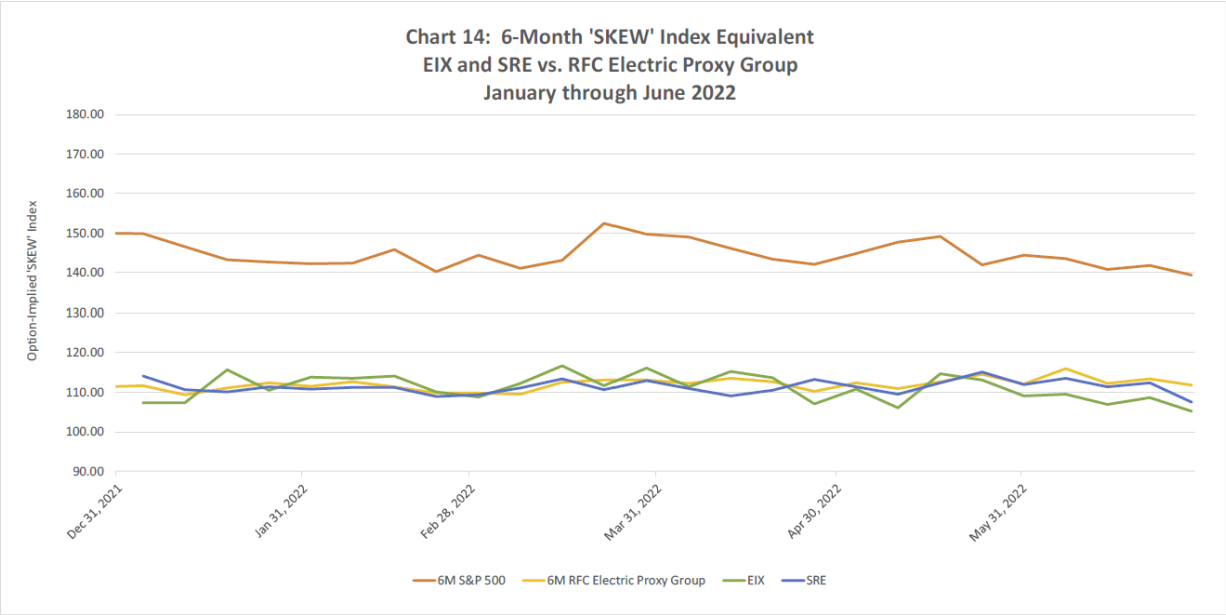


As can be clearly seen on the chart, option-implied betas for all three remain mostly below 0.60 throughout the period. SRE's option-implied betas remain very much in line with those of the RFC Electric Proxy Group throughout the entire period. Even though EIX had slightly higher betas than SRE and the RFC Electric Proxy Group at the beginning of the period, the betas of EIX and SRE are practically indistinguishable throughout June 2022, both very much in line with the RFC Proxy Group. Both EIX and SRE had slightly lower option-implied betas than the RFC Proxy Group as of the end of June 2022. This comparative analysis indicates that there is no significant difference in risk profile between the two applicants and the average of the proxy group.[158]

Chart 14 shows spot values for the option-implied SKEW Index (equivalent to CBOE's SKEW index) for EIX, SRE, and the RFC Electric Proxy Group from January through June 2022, as

[158] WTF-01 at p. 97.

well as that of the S&P 500 Index for comparison.[159]



The chart clearly shows that the skewness of EIX, SRE, and the RFC Electric Proxy Group remain very much in line with each other throughout these six months, all considerably below the skewness of the market overall. This indicates that investors perceive considerably lower downside risk for EIX, SRE, and the RFC Electric Proxy Group than for the overall market. This also indicates that there is no significant difference in the downside risk perceived by investors for the two applicants as compared to the average of the proxy group. In fact, it should be noted that both EIX and SRE consistently had a lower SKEW Index than the RFC Electric Proxy Group through all of June 2022.[160]

[159] WTF-01 at p. 98, Chart 14.
[160] WTF-01 at pp. 97-98.

IV. THE UTILITIES HAVE NOT DEMONSTRATED THAT THEIR REQUESTED COSTS WOULD BE JUST AND REASONABLE (SCOPING ISSUE 2-5)

None of the Utilities have made an affirmative showing with percipient witnesses in support of all elements of the Utility's application and have thus failed the Utility's burden of proof to demonstrate by clear and convincing evidence that the requested costs should be authorized. The Utilities inclusion of wildfire risk premium in their costs request undermines the credibility of all requests. The Utilities witness testimony likewise lacks credibility as they rely almost exclusively on non-market data, including economists' projections, analysts' forecasts, and the witnesses' own speculations, even when market data is available and even when such forecasts have been shown to be reliably unreliable. Further, the Utilities' witnesses use flawed analytical techniques that distort financial reality. They use stale data and narrow, limited, and static approaches in their calculations that do no produce reliable, market-based results which do not, therefore, meet the standard of Bluefield and Hope.

The witnesses testifying on behalf of the Utilities provided ROE recommendations of between 10.53% and 11.00%. They arrived at their recommendations based on numerous methods including their own versions of the DCF, Risk Premium analyses, CAPM/ECAPM, Implied Equity Risk Premium and Comparable Earnings approaches. Although the Companies' witnesses define the cost of equity or COE as market-based or established using market data, the ROE recommendations of the Utilities' three witnesses cannot be considered market-based. For example, they recommend using forecasted long-term government bond interest rates in their CAPM analyses instead of using market data to measure investors interest rate expectations directly.[161] The historical betas used by all three witnesses are based on market

[161] WTF-01 at p. 100.

data, but are backward looking and therefore it is unlikely they represent investors' current return expectations. They ask for firm specific risk adjustments, in most cases, without the required market-based justification. The witnesses rely on many of the same flawed analytical techniques, especially SCE and PG&E's witnesses which are colleagues at the same consulting firm.

SCE's cost of capital witness Dr. Villadsen claims that SCE's requested ROE of 10.53% is reasonable. However, her 10.53% recommendation is not based on her model results alone. The results of her DCF models range between 6.90% and 9.5% (averaging 8.42%)[162], far below her 10.53% ROE recommendation. The unadjusted results of Dr. Villadsen's COE models are still higher than SCE's market-based cost of equity because of flaws in her application of those models.[163] But, furthermore, Dr. Villadsen claims it is necessary to make calculations that increase her cost of equity results to account for the difference between market value and book value capital structures.[164] This adjustment increases her model results to between 9.30% and 10.75%,[165] which may be closer to what SCE wants, but do not represent a legitimately calculated cost of equity.

PG&E's cost of capital witness Dr. Vilbert, claims that PG&E's requested ROE of 11.00% is reasonable. Like Dr. Villadsen, Dr. Vilbert's recommendation is not based on his model results alone. He also claims it is necessary to make calculations that increase his cost of equity to account for the difference between market value and book value capital structure.[166]

[162] SCE-02 at Appendix C-57 and C-58, Schedule No. BV-C7, Panels A and B.
[163] WTF-01 at p. 102:5-7.
[164] SCE-02 at pp.10-13.
[165] SCE-02 at p. 52, Figure 16.
[166] WTF-01 at p. 120.

This adjustment increases his model results above what represents a legitimately calculated cost of equity.

SDG&E's witness Mr. Coyne has recommended SDG&E be allowed an ROE of 10.55%. He claims that the ROE is a "market-based concept", but when applying his approaches, there are key places where he fails to use market data. The non-market data that he uses include projected interest rates instead of directly observable market yields and forecasted accounting figures (return on book equity) instead of investors' expected return on the market price of equity.[167]

A. Utility Witness Unadjusted Model Results are Unreliable

The models used by the Utility witnesses are not reliable for numerous reasons, including the following: 1.) they rely significantly on "expert" forecasts and historical data instead of market data that reveals investors' expectations directly, 2.) contain mathematical flaws that inflate the results, 3.) use accounting returns and past authorized ROEs instead of market-based data.

The Federal Energy Regulatory Commission (FERC) determine that Mr. Coyne's Expected Earnings model, which relies on accounting returns instead of market returns, does not satisfy the requirements of Hope.[168] This method has been discredited and eliminated from consideration in FERC ROE proceedings and should likewise not be considered by the Commission.[169] Dr. Villadsen and Dr. Vilbert's so-called Implied Risk Premium, like Mr.

[167] WTF-01 at p. 126.
[168] WTF-01 at p. 127.
[169] WTF-01 at pp. 135-136; FERC Opinion No. 569, Par 200.

Coyne's Expected Earnings Model, should be rejected because it is not market-based.[170] It simply calculates the historical relationship between authorized ROEs and interest rates. Authorized ROEs are applied to book equity and therefore, in order to determine investors' return expectations, it is required to consider the market price investors are willing to pay for the companies with these authorized ROEs.[171]

Each of the Utility witnesses' COE models have additional issues that contribute to their unreasonably high results.

1. DCF

All the Utilities' constant growth DCF methods are unreliable because the witnesses mechanically use analysts' 5-year EPS growth rate forecasts as a proxy for growth without considering the mathematical relationship between retention rates, dividend payments, and growth.[172] A company cannot invest and grow with money it has paid out to investors as a dividend. The correct application of the DCF method requires that the dividend yield be computed properly, and that the growth rate used be derived from a careful study of the future sustainable growth in cash flow anticipated by investors. Growth rates such as five-year projected growth in earnings per share are not indicative of long-term sustainable growth rates in cash flow. As a result, they are not applicable for direct use in the simplified DCF method.[173]

Interestingly enough, Dr. Villadsen takes the position that the results of her own DCF modeling should be given limited weight. Dr. Villadsen claims that "…the multi-stage DCF

[170] WTF-01 at p. 102.
[171] WTF-01 at p. 118:8-14.
[172] WTF-01 at p. 108-111.
[173] WTF-01 at p. 108.

mode's assumption that current prices reflect investors' expectations that dividend growth will converge with the rate of GDP growth in the long term may understate how the pattern of expected dividends will be valued in the market throughout the period for which fates decided in this proceeding will be in effect (i.e., 2-23 onward)."[174] Her claim that the 6.9% results of her multi-stage DCF are downward biased is opportunistic and non-market-based. Dr. Vilbert also claims that the DCF method is "downward biased."[175]

Mr. Coyne correctly states that the constant growth DCF model "assumes" dividends grow at a constant rate in perpetuity and that "one must assume a constant payout ratio, and that earnings per share, dividends per share, and book value per share all grow at the same constant rate."[176] But, his DCF method contradicts his own description of how the constant growth model should be implemented. His growth estimate relies entirely on analyst EPS growth forecasts.[177] The correct application of the DCF method requires that the dividend yield be computed properly, and that the growth rate used be derived from a careful study of what future *sustainable* growth in cash flow is anticipated by investors. Major financial institutions like J.P. Morgan Chase do not use a growth rate based on analyst 5-year EPS growth rates as the Utility witnesses have done.[178]

[174] SCE-02 at p. 48:6-11.
[175] PGE-01 at p. 2-9: 8-9.
[176] SDGE-04 at p. 34:7-9.
[177] SDGE-04 at Exhibit JMC-4, pp. 1-3.
[178] WTF-01 at pp. 123-124.

2. CAPM

The results (9.20% - 10.0%) of Dr. Villadsen's CAPM analysis are not based on investor expectations. Her CAPM analysis relies upon analyst forecasts (e.g., interest rates, Bloomberg's forecasted equity returns) instead of investor expectations as revealed by market data. Dr. Villadsen's use of non-market-based data in her "forward-looking" CAPM analysis contradicts her own statement that the cost of equity should rely on market-based data to quantify investor expectations.[179] Dr. Vilbert's CAPM analysis also relied upon analyst forecasts instead of investor expectations and therefore should not be relied upon to set PG&E's authorized ROE because the results are not market-based.[180] Mr. Coyne's CAPM analysis results (13.93% - 14.05%) suffer from the same problems - he uses historical data (e.g., betas) and analyst forecasts (e.g., interest rates, earnings growth) instead of investor expectations as revealed by market data. Mr. Coyne's CAPM analysis is certainly not market based and should therefore not be relied upon to determine SDG&E's authorized ROE.[181]

All the Utilities' CAPM results likely overstate the cost of equity because Dr. Villadsen, Dr. Vilbert, and Mr. Coyne all use stale 5-year historical betas to calculate an average of 0.90[182] for Dr. Villadsen and Dr. Vilbert's proxy group and 0.88 and 0.873 for Mr. Coyne's proxy group.[183] Recently calculated option-implied betas based on current investor expectations average .59.[184] The Utility witnesses' 5-year historical betas overstate SCE's cost of equity

[179] WTF-01 at p. 117:8-12.
[180] WTF-01 at p. 122:4-9.
[181] WTF-01 at p. 133:2-10.
[182] WTF-01 at p. 116:3-4.
[183] WTF-01 at p. 132:7-10.
[184] WTF-01 at p. 132:10-16.

because they remain elevated from the short-term extreme market conditions that prevailed during the onset of the COVID-19 pandemic in March 2020.

Historical betas calculated with capital market data of 2-years or less are not impacted by the short-term market turmoil from March-April 2020. Therefore, in this proceeding, to determine a cost of equity for the Utilities that is reflective of current market conditions (i.e., not impacted by short-term market phenomena) it is required to consider historical beta coefficients that look back 2 years or less.[185] The short-term turmoil caused by the pandemic in March 2020 should be given little, if any, weight in COE models, and instead one should give more weight to historical beta coefficients that look back 2 years or less.[186] As shown above in Chart 15[187] and Dr. Vilbert's Figure 2-3[188], historical beta coefficients calculated based on time horizons of two years are lower than 5-year historical betas. Historical beta coefficients calculated based on a 6-month time horizon came down significantly starting roughly 6 months after March 2020. The 1.5- year historical betas started to come down roughly 1.5-year later.

When used correctly, historical betas are a decent way of estimating recent non-diversifiable risk, but are still inherently backward looking. Dr. Villadsen agrees that historical data can under (or overstate) the cost of equity.[189] This is the reason why Mr. Rothschild relies on option-implied betas in addition to historical betas to estimate forward-looking systematic risk in the form of beta. Current stock option data indicates that investors expect betas for electric utility stocks to be lower than the 5-year historical betas relied upon by the Utility witnesses.

[185] WTF-01 at p. 115:13-17.
[186] WTF-01 at p. 115:18 – 116:1.
[187] WTF-01 at p. 116, Chart 15.
[188] PGE-02 at p. 2-12, Figure 2-3.
[189] WTF-01 at p. 114:18 – 115:1, SCE-02 at pp. 16, 11-12.

Because these historical beta coefficients are higher than forward measures of systematic risk currently anticipated by investors they overstate the cost of equity.

Option-implied betas indicate that investors expect electric utility stock price movements to be less correlated with the overall market than before the COIVD-19 pandemic.[190] As of December 31, 2019, the 3- month average option-implied beta for Mr. Rothschild's Electric Proxy Group was 0.76.[191] As of June 28, 2022, the 3-month average option-implied beta of these 26 electric utility companies was 0.58 which means that investors expect electric utility stocks to move less than two-thirds of a percent for every one percent the market moves.[192]

Another reason Dr. Villadsen's CAPM and ECAPM analyses likely overstate the cost of equity is because she uses a different market index for her beta calculations than she uses for her market risk premium.[193] She uses 5-year historical betas published by Value Line which are based on the NYSE Composite Index, but her market risk premium is based on the S&P 500 Index.[194] The most important aspect of selecting a market index for a CAPM analysis is to be consistent and use the same index for the calculation of beta as for the calculation of the market risk premium. Using exactly the same beta calculation methodology with a different market index will result in different values of beta for a given company or portfolio -- sometimes drastically different values.[195] Dr. Vilbert's CAPM and ECAPM analysis also likely overstate the cost of equity because he uses a different market index for his beta calculations than he uses for his market risk premium.

[190] WTF-01 at p. 115:2-4.
[191] WTF-01 at p. 115:4-5.
[192] WTF-01 at p. 115:5-8.
[193] WTF-01 at p. 116:8-117:4.
[194] WTF-01 at p. 116:10-12.
[195] WTF-01 at p. 116:8-117:4.

B. Utility Witness Recommendations are Made Even More Unreliable by the Application of Inappropriate Adjustments

The results of Dr. Villadsen's and Dr. Vilbert's unadjusted model results, ranging between 6.90% and 10.20%, are inflated because their models are based on non-market-based methodology that violates the purpose of rate of return regulation. Dr. Villadsen's and Dr. Vilbert's results are made even more unreliable by the application of inappropriate adjustments such as applying a leverage adjustment. Financial leverage is a measure of the ratio of debt financing to equity financing. As a company takes on more debt, its financial risk increases because the higher the leverage, the higher the chance of financial stress and bankruptcy. It is appropriate to consider financial leverage in general, as Mr. Rothschild does in his testimony. However, Dr. Villadsen's and Dr. Vilbert's leverage adjustment in this proceeding has nothing to do with finance. Applying a market-based cost of equity to book value is the very definition of original cost ratemaking, but not a reason to make a leverage adjustment. Therefore, the financial leverage adjustment proposed by Dr. Villadsen and Dr. Vilbert is simply misplaced and should be removed from consideration in this proceeding.[196]

[196] WTF-01 at pp. 102:10-103:5, WTF-01 at pp. 120:15-121:8.

V. CHANGES TO THE COST OF CAPITAL MECHANISM (SCOPING ISSUES 6-7)

The Commission has repeatedly affirmed the Cost of Capital Mechanism as a just and reasonable means, consistent with *Hope* and *Bluefield*,[197] of maintaining rates in line with market conditions. As the Commission explained in 2013,

> The CCM has provided certainty for its customers and investors, and avoided the use of scarce Commission resources to litigate the utilities' COC. . . the combination of a 12-month measurement period and 100-basis point deadband provides a level of stability between full COC proceedings occurring every third year that strikes a balance between triggering too often and triggering too infrequently.[198]

The Cost of Capital Mechanism is somewhat simplistic and is not without flaws, but it is the law as determined by the Commission many times over the past 14 years and it functioned as designed, up until 2022 when the Utilities blew the CCM goals of balance, certainty, and preservation of scarce resources out of the water by filing off-cycle application in the third quarter of 2021 and refusing to file required Advice letter in October 2021 to implement the CCM automatic adjustment.

During the 2020/2021 measurement period interest rates fell, triggering the CCM automatic adjustment for 2022. Pursuant to the CCM, as established in the Commission's 2008, 2013, and 2019 CCM decisions, ROE's should have been adjusted downward effective January 1, 2022. Instead the Utilities elected to file off-cycle applications and knowingly and willingly violate a Commission order that they file Advice Letters to implement the 2022 CCM

[197] *Fed. Power Comm'n v. Hope Natural Gas Co.*, 320 U.S. 591 (1944) ("Hope") and *Bluefield Water Works & Improvement Co. v. Pub. Serv. Comm'n of W. Va.*, 262 U.S. 679 (1923) ("Bluefield").
[198] D.13-03-015 at p. 6.

adjustment. The CCM adjustment was not implemented this past January at the cost of over $400 million to ratepayers.

Given the timing of the Utilities completely elective off-cycle applications, the Commission determined that it could not adequately adjudicate the complicated issue of first impression in the few remaining months of 2021 and therefore permitted the Utilities to establish memorandum account to track ROE costs. While Wild Tree opposed the creation of the memorandum accounts that robbed ratepayers of $400 millions of scheduled, authorized, and lawful rate decreases in the midst of an affordability crisis, it is understandable that the Commission felt it needed to take drastic action to respond to an issue of first impression in totally unexpected, extra cost of capital applications. But, this process should by no means be established as precedent for any future attempts by the Utilities to subvert the lawful operation of the CCM to avoid automatic rate decreases.

The proposal by PG&E to establish a process whereby any utility can file an off-cycle application at any time and the CCM automatic adjustment would be suspended just based upon the filing of the application would be unfair to ratepayers and contrary to the Bluefield and Hope standards. The Commission should reject this proposal in its entirety because it allows the Utilities to benefit from the CCM when it goes their way (higher ROE) and avoid lower rates when it does not go their way.

The CCM is an adequate tool for adjusting the cost of capital as capital markets but it can be improved. The goal of a cost of capital proceeding is to take a snapshot of current capital markets as of a certain date and to use that snapshot to estimate the cost of capital looking forward from that moment on. But capital markets never truly stand still, making the exercise of determining the cost of capital a constant attempt to hit a moving target. The CCM is an

excellent and necessary tool to make adjustments in the cost of capital between one proceeding and the next, when capital markets change more significantly than expected. However, the current incarnation of the CCM, which is triggered only by extreme changes in interest rates, results in a blunt tool that doesn't adequately reflect changes in the cost of capital as markets evolve.[199] Interest rates affect the cost of capital, but they are only one of several key factors that affect the cost of capital. Beta coefficients (a measure of risk based on the correlation between changes in the stock prices of utility companies and changes in the market a large) and the market risk premium (the additional return afforded by the stock market above the risk-free rate) are also key factors that affect the cost of capital – and they are also constantly changing. For instance, interest rates could go up over a certain period, but if beta coefficients decrease during that time, that could more than offset the increase in interest rates, resulting in a lower cost of equity. Setting rates exclusively based on changes in interest rates in such a case would be erroneous and result in overcharging consumers.[200]

Wild Tree encourages the Commission to take the action suggested in the scoping memo and open a new proceeding or a new policy track in this proceeding to explore the establishment of a new CCM that takes into consideration changes in beta coefficients and the market risk premium along with changes in interest rates in determining changes in the cost of capital as capital markets evolve.

[199] WTF-01 at pp. 98-99.
[200] WTF-01 at pp. 98-99.

CONCLUSION

For the reasons described herein, the Commission should reject the requests by the Utilities and adopt Wild Tree Foundation's recommendation on capital structure, costs of equity, and changes to the cost of capital mechanism.

Respectfully submitted,

/s/ April Rose Maurath Sommer

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