Docket No. A.20-04-023

Exhibit No. ___________

Date: October 14, 2020

Witness: Catherine E. Yap

TESTIMONY OF CATHERINE E. YAP ON BEHALF OF

THE CALIFORNIA LARGE ENERGY CONSUMERS ASSOCIATION

REDACTED

October 14, 2020

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TESTIMONY OF CATHERINE E. YAP ON BEHALF OF THE CALIFORNIA LARGE ENERGY CONSUMERS ASSOCIATION

I. Introduction

This testimony is presented by Catherine E. Yap on behalf of the California Large Energy Consumers Association ("CLECA"). Ms. Yap has four decades of experience preparing and delivering testimony before this Commission as well as in other jurisdictions. Ms. Yap's statement of qualifications is included as Attachment A to this testimony.

On April 30, 2020, Pacific Gas and Electric Company ("PG&E") filed Application ("A.") 20-04-023, which proposes to apply the Stress Test Methodology to PG&E's 2017 wildfire claims and seeks authorization to issue $7.5 billion in recovery bonds that would be securitized by an unavoidable equal cents per kWh charge to all current and future ratepayers. The Assigned Commissioner's Scoping Memo and Ruling ("Scoping Memo")[1] notes that "PG&E claims the proposed Securitization provides a cost-efficient way to retire $6 billion of temporary utility debt that will be used to pay wildfire claims costs" and PG&E claims "the proposed Securitization is designed to be rate-neutral and customer-protective." The Scoping Memo identifies numerous issues to be determined in this proceeding.

This testimony responds to a number of key issues set forth in the Scoping Memo. These key issues are at the heart of the determination as to whether the proposed securitization can be considered just and reasonable.

[1] Assigned Commissioner's Scoping Memo and Ruling, July 28, 2020, at 2.

II. Conclusions and Recommendations

The Commission should reject this application as not being just and reasonable. In the alternative, if the Commission approves the application, the Commission must significantly restructure the deal by requiring PG&E, immediately following the issuance of the securitization debt, to place enough money into the Customer Credit Trust to ensure sufficient funds to guarantee ratepayer neutrality over the life of the securitization. The Commission should furthermore require PG&E to spin the Trust off into a separate entity so it cannot be entangled in any potential downstream bankruptcy.

III. Issue 1.c: Whether the proposed securitization provides a sufficient path to an investment grade rating for PG&E.

The Scoping Memo directs parties to address whether the issuance of securitized debt as proposed by PG&E will lead to an improvement in PG&E's bond rating ultimately resulting in an investment grade rating. Having reviewed the confidential Rating Agency Evaluation Letters, it is clear that securitization alone will not allow PG&E to achieve an investment-grade credit rating. This conclusion is made clear in each evaluation document that has been attached to PG&E's testimony.

Standard & Poor's ("S&P"): S&P's letter shows [redacted]

[redacted].[2] [redacted]

[2] PG&E-01, Exhibit 1.2 at 1-exh1.2-3.

[3]

S&P's evaluation of the securitization option versus the no securitization option

. Thus, it appears that the assertions made by PG&E to the Governor's office and others that the use of securitization will significantly improve PG&E's credit rating and allow it to achieve investment grade were at best misleading.

Moody's: The Moody's evaluation states:

[4] This statement applies to both Scenario 1 (with securitization) and Scenario 2 (without securitization.)

[3] PG&E-01, Exhibit 1.2 at 1-Exh1.2-4.
[4] PG&E-01, Exhibit 1.3 at 1-Exh1.3-4.

Fitch: [redacted]
[redacted]
[redacted].[5]

When questioned about how the securitization would improve PG&E's business position and/or remove one or more of S&P's negative modifiers, PG&E claims:

> S&P's business risk and negative modifiers reflect S&P's subjective assessment of qualitative factors. PG&E believes that an improvement of its business risk from "satisfactory" to "strong" and/or removal of one or more negative modifiers is more likely if the proposed Securitization is approved, because that would signal a more cooperative relationship with the Commission and other stakeholders. This, in turn, could logically be interpreted as support for PG&E's financial mitigation efforts, which could extend to the expectation of a more cooperative process for addressing wildfire related cost recovery in the future, such as pursuant to AB 1054. Support for PG&E's financial mitigation efforts, coupled with a more cooperative process for addressing wildfire-related cost recovery, will naturally be viewed favorably by the credit rating agencies.[6]

PG&E apparently believes that approval of the securitization would somehow overcome the [redacted] that S&P refers to and lead PG&E to a higher credit rating. However, from S&P's evaluation, it is very clear that securitizing PG&E's debt has [redacted] [redacted]. PG&E will have to address the issues of [redacted] [redacted] separately if it hopes to raise its credit rating. Certainly, PG&E will have to demonstrate its ability to effectively handle its wildfire mitigation and customer relations issues and that can only happen over time. Furthermore, the approval or denial of a single application does not represent a fundamental change in the relationship between PG&E and the Commission. To the contrary, that requires continued demonstrated changes in PG&E's behavior, which again will take a significant period of time.

[5] PG&E-01, Exhibit 1.4 at 1-Exh1.4-2.
[6] Attachment B: PG&E Response to CLECA-PGE-02, Q.2.5.

Recent S&P and Moody's Evaluations: Recent evaluations by the rating agencies demonstrate that they remain particularly concerned about wildfire risk and regulatory risk. The September 16, 2020, evaluation from S&P, while affirming the BB- ratings for PG&E Corp., revised its "outlook on PG&E Corp. and subsidiary Pacific Gas & Electric Co. (Pac Gas) to negative from stable."[7] The evaluation reflects S&P's wildfire concerns that "the lack of sufficient rainfall, the dry environment, and the ease that relatively routine wildfires can develop into catastrophic wildfires increases the likelihood that a California investor-owned electric utility could potentially be the cause of a catastrophic wildfire."[8]

S&P further elaborates about regulatory risk:

> Many of California's electric customers have already faced rolling blackouts in 2020 due to the extraordinary hot weather and we expect the pace of public safety power shut-offs to accelerate, reflecting California's utilities proactively reducing the risk of causing a catastrophic wildfire. Should the frequency of these blackouts and shut-offs increase, frustrated customers and politicians could negatively affect California's investor-owned electric utilities ability to consistently manage regulatory risk.

S&P states that "a default scenario could stem from sudden liquidity pressure from an unpredictable weather, cost, or market event outside of the company's control, consistent with past utility defaults. Further, it could reflect significant future litigation exposure at Pac Gas, consistent with PG&E's prior default."[9]

An August 19, 2020, assessment from Moody's regarding "what's next after emergence from bankruptcy" expresses concern about PG&E's ability to mitigate wildfire risk but sees the proposed securitization financing to be credit neutral.[10] Moody's acknowledges "Only time will

[7] Attachment C: 2020-09-16 S&P PG&E Corp. And Subsidiary Outlooks Revised to Negative on Adverse Wildfire Conditions; 'BB-' Ratings Affirmed, September 16, 2020 at 1.
[8] *Id*. at 2.
[9] *Id*. at 4.
[10] Attachment D: 2020-08-19 FAQ on what's next after emergence from bankruptcy.pdf at 1.

tell" with respect to PG&E's ability to mitigate wildfire risk.[11] While acknowledging PG&E's wildfire plan, Moody's also notes that the climate models project more than a 10 percent increase in square miles at risk in PG&E's service territory over the next 30 years relative to the last 13 years.[12] Moody's also notes that "a new wildfire would likely increase social and reputational risk more than financial risk. Because of PG&E's history of safety problems, the company already faces greater social risk than most of its regulated electric and gas utility peers."[13] Moody's states: "PG&E will likely have to get through at least three years without a catastrophic wild fire in order to adequately demonstrate that it has substantially reduced its exposure to wildfire risk."[14] Moody's also observes that "the company also has to address near-term governance risks."[15]

These more recent assessments demonstrate clearly that in the eyes of the rating agencies, the securitization that PG&E has proposed does nothing to improve the company's credit rating. The focus of these entities is on PG&E's actual performance in managing its wildfire risk as well as improving its governance and interactions with regulators and customers over the next several years. Recent events cannot have made the rating agencies particularly confident about PG&E's performance. The active Zogg fire, which has reportedly burned more than 56,000 acres west of Redding, destroying 204 structures and causing four deaths, has been potentially attributed to PG&E equipment.[16]

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[11] *Id*. at 2.
[12] *Id*. at 2-3.
[13] *Id*. at 4.
[14] *Id*. at 5.
[15] *Id*.
[16] Attachment E: *Wall Street Journal*, PG&E Equipment Might Have Ignited Northern California Wildfire, October 9, 2020.

IV. Issue 3: Whether PG&E's proposal for the securitization is neutral, on average, to ratepayers, as required by D.20-05-053

The Commission's decision approving PG&E's Reorganization Plan states: "Given the close connection between the plan and the proposed securitization and PG&E's commitment that its securitization application will meet the requirements of AB 1054, including ratepayer neutrality, the securitization application should satisfy those requirements."[17] Thus, PG&E is required to demonstrate that its proposed securitization is ratepayer neutral. Given the inherent risks to ratepayers in PG&E's proposal, it has failed to make such a demonstration.

A. Issue 3.a: Is the proposed structure reasonable in the event there is ultimately a Customer Credit Trust shortfall?

No, if there is a shortfall in the Customer Credit Trust ("Trust"), the securitization plan cannot be viewed as ratepayer neutral because it would end up increasing cost for ratepayers. If it is not revenue neutral, it violates the Commission's express decision that the securitization be revenue neutral to ratepayers.

Under PG&E's proposal, there are a number of ways that the Trust could fail to provide sufficient revenues to offset the securitization costs that PG&E proposes to place on ratepayers. I will discuss each of these risks at more length below in Section B. In my opinion, the Commission should deny PG&E's application. However, if the Commission decides to approve PG&E's proposed securitization, it is imperative that the Commission modify PG&E's proposal in a manner that would dramatically reduce the risk to ratepayers that the Trust would fail to provide sufficient revenues to offset the costs associated with PG&E's proposed securitization. I

[17] D.20-05-053 at 85.

make some specific recommendations in Section B that are designed to reduce the risk of a shortfall in the Trust.

B. Issue 3.b: Whether PG&E's proposal reasonably accounts for risks to ratepayers or whether alternatives to PG&E's securitization transaction are available that strike a better balance of benefits and detriments?

In order to make the proposed securitization transaction "ratepayer neutral," PG&E proposes to:

> fund the Customer Credit Trust starting in 2021 with an initial contribution of \$1.8 billion (the Initial Shareholder Contribution). In later years, PG&E would fund additional contributions (the Additional Shareholder Contributions) to the Customer Credit Trust of up to \$7.59 billion (the Cap) based on a formula to calculate the incremental cash generated from reducing PG&E's taxes through applying shareholder-owned tax deductions or net operating losses (Shareholder Tax Benefits). The Shareholder Tax Benefits primarily arise from payments made by PG&E's shareholders related to wildfire claim settlements and contributions to the Go-Forward Wildfire Fund described later in this chapter.[18]

However, PG&E does not provide any assurance that the ratepayers will truly be held harmless from this transaction. The ratepayers face a four-fold risk associated with the Trust and each risk element may occur solely or in combination with the other risk elements. First, the ratepayers face the risk that the series of payments made by the shareholders using the net operating losses ("NOLs") will be smaller than projected, which would result in a longer payout period. Second, the ratepayers face the risk that PG&E may enter into another bankruptcy before the shareholders complete their series of payments into the Trust. Third, the ratepayers face the risk that the Trust will not earn adequate returns on its investments. Fourth, the ratepayers face the risk that the Trust itself would be subsumed into future bankruptcy proceedings, should they occur.

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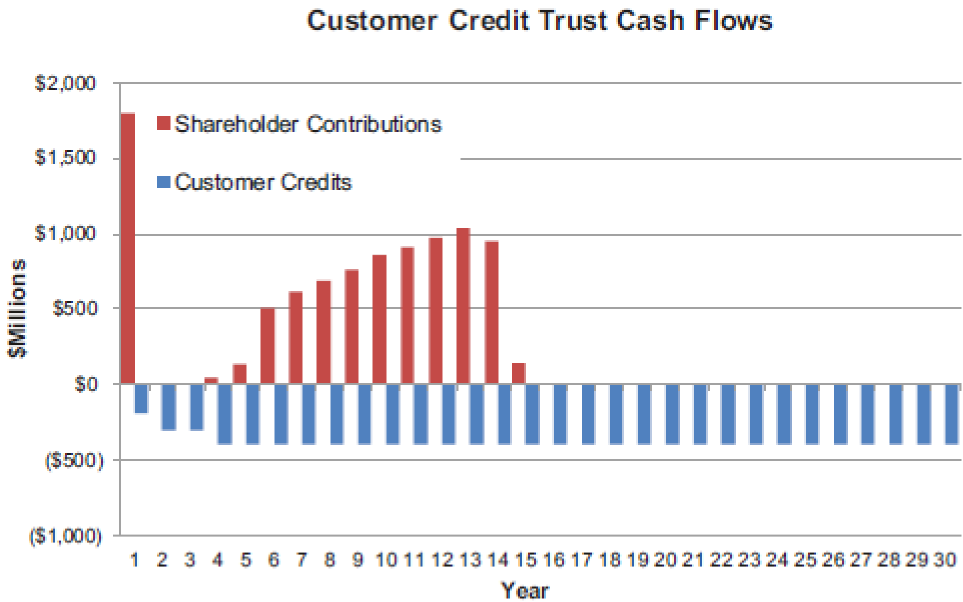
[18] PG&E-06 at 6-1.

1. Risk 1: Shareholder Payments Associated with NOLs Are Lower than Projected.

The projected shareholder contributions, which are based on the NOLs reducing PG&E's income tax payments, may not actually occur, or at least not to the extent projected by PG&E. These tax reductions associated with the NOLs are predicated on PG&E's ability to generate profits, which assumes that PG&E will operate its business successfully and without causing further major wildfires. It remains to be seen whether the company will be able to accomplish this.

PG&E witnesses Thomason and Allen present a chart that shows the projected timing of the shareholder contributions relative to the timing of the ratepayer payments. The chart[19] is reproduced below:

FIGURE 6-1
CUSTOMER CREDIT TRUST CASH FLOWS



[19] PG&E-06 at 6-24.

If PG&E's projections of shareholder contributions based on the NOLs are unduly optimistic, then the contributions will be paid over more years. The lower payout and longer timeframe over which the payout occurs increases the risk to the ratepayers that the securitization will fail to be offset by the Trust revenues because there would be more years during which the company could end up in bankruptcy. Furthermore, having a lower contribution rate over a longer timeframe provides less time for the Trust investments to earn a return. In such a circumstance, the ratepayer costs would increase and the securitization would not be neutral to ratepayers.

2. Risk 2: PG&E Enters into Another Bankruptcy Before the Trust Is Fully Funded.

PG&E's projected shareholder contributions continue through year 14 before completing all of the shareholder contributions to the Trust. Therefore, there is material risk to ratepayers over those 14 years that there could be another PG&E bankruptcy prior to the completion of the payments to the Trust. PG&E's system is not yet hardened and it will not be hardened for quite a number of years. During any of these years, it is possible that PG&E could be responsible for starting another catastrophic fire that could result in another bankruptcy before the Trust is fully funded. If PG&E were to enter again into a bankruptcy proceeding, the shareholders would be unable to make the promised contributions to the Trust. The shareholders' obligations to pay the Trust would get swept into the bankruptcy proceedings. If the Trust is not fully funded, it most certainly would not generate enough revenue to offset the securitization costs. Under such a circumstance, the securitization would most certainly not be neutral to ratepayers and the costs would increase for ratepayers.

3. Risk 3: Even PG&E Recognizes that There Is a Substantial Risk that the Trust Investments May Not Earn Sufficient Return to Cover the Securitization Cost, Even Assuming PG&E's Projections of Shareholder Contributions Are Correct.

Even assuming that the shareholders make all of the payments into the Trust that PG&E projects, the Trust assets may not earn sufficient returns to assure coverage of all of the securitization costs. In fact, as shown below in the table presented by PG&E witnesses Thomason and Allen, there is a very significant probability that the Trust will be unable to cover all of the payments that ratepayers will be required to make under the securitization.

TABLE 6-7
RANGE OF SURPLUS OUTCOMES AND YEAR OF FIRST SHORTFALL
(MILLIONS OF DOLLARS)

Range of Surplus (Deficit) Including Principal Tax Gross-Up

Percentiles	Nominal Surplus (Deficit)	NPV Surplus (Deficit)	First Shortfall Year
5%	$16,639	$2,023	NA
10%	$12,642	$1,537	NA
15%	$9,874	$1,200	NA
20%	$8,176	$994	NA
25%	$7,005	$852	NA
30%	$6,034	$734	NA
35%	$5,180	$630	NA
40%	$4,468	$543	NA
45%	$3,860	$469	NA
50%	$3,276	$398	NA
55%	$2,785	$339	NA
60%	$2,292	$279	NA
65%	$1,809	$220	NA
70%	$1,372	$167	NA
75%	$914	$111	NA
80%	$421	$51	NA
85%	($106)	($13)	2050
90%	($851)	($109)	2049
95%	($1,928)	($265)	2047
Expected Value (EV):	$4,414	$535	
EV Positive Outcomes:	$4,566	$555	
EV Negative Outcomes:	($152)	($20)	
Breakeven Pre-Tax Return:	4.04%	4.04%	
Probability of Surplus:	84%	84%	

1 Even under PG&E's assumptions about the amount and timing of shareholder
2 contributions to the Trust, PG&E's proposal does not assure ratepayers that they will receive
3 sufficient rate credits to offset the entire cost of the securitized debt over its life.

4 PG&E has based its analysis on "over 2000 [Monte Carlo] simulations, [finding] the
5 Customer Credit Trust had a positive terminal balance in roughly 84 percent of the outcomes."[20]
6 In the other 16 percent of the outcomes there is a shortfall. If there is a shortfall, the rate credit
7 designed to offset the non-bypassable charge will be insufficient and the securitization will not
8 be neutral to ratepayers. PG&E states that "none of these simulations included Additional
9 Shareholder Contributions different from the $7.59 billion cap".[21] Thus, under PG&E's proposal
10 there would be no other source of funds to make up the shortfall. The ratepayers would pay for
11 it.

12 PG&E, recognizing the inherent risks for ratepayers in that these shortfalls represent,
13 proposes that, should the Trust have a positive balance at the end of its life, the ratepayers would
14 receive 25 percent of that balance. [22] Thus, according to PG&E the Trust is like an investment
15 where the investor must take a risk in order to receive a return on the investment. However,
16 ratepayers are not investors[23] and it is inappropriate to structure the transaction so it poses
17 significant risk that the ratepayers may not be made whole.

[20] PG&E-06 at 6-21.
[21] Attachment F: PG&E Response to TURN data request No. 1, Question 5(e)
[22] PG&E-06 at 6-2.
[23] Furthermore, even if the Commission were to consider the proposed Trust from an investment perspective, there are a wide range of discount rates that could apply for ratepayers. Discount rates reflect the underlying time value of money. The time value of money for ordinary people can vary from relatively low rates that people can earn on bank savings accounts to very high discount rates such as 16-18 percent that is reflective of their actual short-term cost of borrowing, *i.e.,* credit cards.

4. Risk 4: The Trust May Get Swept into a Future PG&E Bankruptcy Should One Occur.

Another element that poses risk to the ratepayers is the treatment of the Trust should PG&E once again enter into bankruptcy. PG&E proposes to structure the trust "so its assets would be dedicated exclusively to funding the Customer Credit and to minimize risks in the event of a subsequent PG&E bankruptcy."[24] However, the possibility remains that the Trust itself could be swept up into the bankruptcy proceedings despite PG&E's efforts to structure it so it would not. PG&E has now gone through two bankruptcy proceedings in less than 20 years. The Trust is expected to last 30 years. Given PG&E's history and the fact that it will take a long time to fully harden PG&E's system against wildfire risk, there continues to be a material risk that the company will again face a bankruptcy. I am not aware of any type of successful "ring-fencing" this Commission could adopt that would guarantee that the ratepayer trust would be protected from the bankruptcy process as PG&E has proposed.

5. PG&E's Claim of Interest Rate Savings Produces Only a Small Reduction in Revenue Requirement.

PG&E claims lower interest rates as a result of the securitization but in actuality the savings would be small. [redacted] . Thus, the interest rate savings that PG&E has been able to identify are small and are predicated on PG&E's obtaining a higher credit rating as a result of the securitization, which I believe to be very unlikely.

PG&E claims "since securitization likely would accelerate PG&E's path to achieve an investment-grade issuer credit rating by approximately two years as compared to a scenario

[24] PG&E-01 at 1-13.

without securitization, that yields customer benefits of approximately $9 million per year for two years, or $18 million in total."[25] PG&E states that the estimated nominal long-term debt savings are $423 million and the $18 million is in short-term debt savings. However, that assumes a spread between a BBB- rating and a BB- rating of 60 basis points, which it says is conservative.[26] PG&E claims that a savings of 60 basis points of interest expense on $1.96 billion annually "translates to a pre-tax annual savings of $11.74 million in 2023 and approximately $23 million in 2024 and thereafter."[27] This is a trivial amount of ratepayer benefit in the context of PG&E's retail revenue requirement of roughly $14 billion.

Furthermore, this alleged acceleration appears to be predicated on "improved credit metrics, particularly under S&P's methodology, assuming off-credit treatment for the securitization."[28] Thus, PG&E's financial position improves by its not guaranteeing the Customer Credit Trust and shifting risk to ratepayers. Furthermore, as I discussed previously, I am very skeptical of PG&E's assertion that a scenario with securitization would accelerate an investment grade rating, given the discussion elsewhere in this testimony of the considerable other hurdles PG&E has to achieving such a rating.

6. Alternatives to PG&E's Proposal

If the Commission decides to approve the securitization of debt for PG&E's payment of 2017 wildfire costs despite my recommendation to contrary, the Commission should require PG&E to retain its $6 billion in short-term debt and use a substantial amount of the proceeds from the securitization to fund the Trust. The Trust should be funded immediately at a level that

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[25] PG&E-05 at 5-34.
[26] PG&E-05 at 5-33.
[27] PG&E-05 at 5-33.
[28] PG&E-05 at 5-27.

will assure that ratepayers will receive sufficient funds over the life of the securitization to offset any costs associated with the securitization.

I have not determined the amount of proceeds that would be required, but the Commission should order PG&E to determine the amount of upfront shareholder funding that would be required to provide this assurance. PG&E's projections associated with its proposed shareholder contribution levels show a 16 percent probability that the Trust will produce insufficient amounts to cover all securitization costs; thus, shareholder contributions will likely need to be increased. From a cash flow perspective, PG&E would slow repayment of its short-term debt and use the cash generated by its NOLs to repay a portion of its short-term debt rather than using the cash generated by its NOLs to fund the Trust. Finally, the Commission should require PG&E to spin the Trust off into a separate entity to guard against its possible entanglement in any potential downstream PG&E bankruptcy.

C. Issue 3.c.: Would providing for a dollar for dollar rate credit (in the amount of any shortfall) appropriately ensure ratepayers always receive the full offset? Would such a structure create any secondary issues?

No, if PG&E were again to enter into bankruptcy, its shareholders would be unable to provide such a dollar for dollar rate credit. Thus, while such a credit would have some conceptual appeal from a policy perspective, it does not overcome a substantial portion of the risks faced by ratepayers.

Furthermore, such a structure could create secondary issues. PG&E says: "there will be no further financial commitments to true-up mechanisms provided by PG&E to the Customer Credit".[29] In other words, PG&E will not guarantee the credit, since it says "S&P confirmed off credit treatment for the securitization and the Customer Credit mechanism. In the event that

[29] PG&E-05 at 5-26.

PG&E were to guarantee the Customer Credit mechanism, S&P would likely treat it as an enforceable contractual commitment and, therefore, the securitization would be on-credit and the forecasted improvement in financial metrics would not occur."[30] Thus, the ratepayers are being asked to pay for the securitization with no assurance that they will be made whole, taking on a risk that PG&E will not take on due to the ironclad obligation of a securitization via a non-bypassable charge.

D. Issue 3.d: If modifications to PG&E's proposed structure (including rate credits) are proposed, would those modifications impact credit ratings, and if so, what is the impact?

If the Commission were to approve the securitization but restructure the arrangement so the ratepayers were better protected, presumably the benefits of the regulators' approval that PG&E has identified would still hold. However, it would take longer to eliminate the short-term debt than under PG&E's proposal which would delay their cash coverage projections for a few years. On the other hand, as discussed in Section III, it is going to take PG&E some considerable time to overcome the rating agencies' concerns about its [REDACTED] [REDACTED]. I note that PG&E's executives continue to leave.[31]

E. Issue 3.e: How should downside risk and upside potential in the Customer Credit Trust be allocated between PG&E shareholders and ratepayers?

The ratepayers should not be at risk for paying the securitization debt. Instead the amount held in the trust should be sufficient to guarantee that they will not bear any risk. Ratepayers are not investors—they should be held harmless from any investment-type risk. It is better that they be assured the Trust revenues will entirely offset the securitization debt and allow

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[30] PG&E-05 at 5-27.

[31] William Johnson, CEO-June 30, 2020; Andrew Vesey, CEO & President – July 30, 2020; Jason Wells, CFO – September 25, 2020.

the shareholders to recover any excess revenues that might occur in the Trust at the end of its life. The Commission should not use the prospect of ratepayers' "earnings" on some type of excess amount in the Trust at the end of its life as a justification for allowing PG&E to shift risk onto ratepayers.[32] Instead, the Commission should structure the arrangement to shift the risk back onto PG&E's investors where the risk belongs.

This concludes my opening testimony.

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[32] Discount rates for many ratepayers vary significantly from those of investors—for example, folks that are having difficulties financially may be facing the alternative of paying interest on credit card debt—therefore their cost of money is 18% which is much higher than the cost of money for many investments.

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10 **Attachment A: Qualifications of Catherine E. Yap**
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Attachment A

Qualifications of Catherine E. Yap

Q1. Please state your name and business address.

A1. My name is Catherine E. Yap and my address is Barkovich & Yap, Inc., P.O. Box 11031, Oakland, California 94611.

Q2. Please state your qualifications to offer this testimony.

A2. I am a principal in the firm of Barkovich & Yap, Inc., and have been consulting in the utility regulatory area for over thirty years. During this time, I have directed and/or performed major examinations of cost-of-service requirements, allocation, rate design, and customer bill effects for electric, natural gas, and solid waste utilities. I have testified on numerous occasions before the California Public Utilities Commission (Commission) and in civil proceedings. I have consulted internationally on issues related to natural gas industry structure and marginal cost allocation and rate design.

Prior to this, I was employed for nine years by the Commission. Most recently, I was responsible for managing the Energy Rate Design and Economics Branch of the Public Staff Division (PSD). This branch was responsible for developing cost of service, rate design, and economic studies, such as sales forecasting and productivity assessment, for both electric and gas utilities. Members of the branch were responsible for presenting expert testimony, developing cost of service studies, and designing unbundled rates for the natural gas utilities during the Commission's extensive hearings on gas industry structure and rate design implementation. During this time, I participated extensively in the formulation of policy regarding the appropriate structure for the natural gas industry in California.

Previously, I was the Supervisor of the Gas Supply and Requirements Section of the Fuels Branch of the PSD. I was responsible for directing, and in some cases performing, advanced technical studies that evaluated California gas utility operations and associated contracts, investments, and expenses. I also acted as the highest level technical representative of the Commission on natural gas matters and was involved in numerous negotiated settlements involving natural gas pipelines, distribution utilities, producers, and state and federal regulatory agencies.

1 Prior to that, I was a staff economist in the Policy Division acting as a consultant to the
2 Executive Director and to various Commissioners. I also testified on numerous occasions
3 as an expert witness regarding a variety of technical, economic, and financial matters
4 related to electric and natural gas utilities.

5 I have a B.A. in chemical physics from the University of California at Santa Cruz, and a
6 M.S. in Energy and Resources from the University of California at Berkeley. I have also
7 taken course work in finance, accounting, and organization theory from the University of
8 California, Extension, and Golden Gate University.

9

Attachment B: PG&E Response to CLECA-02, Question 2.5.

Response to Q.2.4 omitted

QUESTION 2.5

Regarding the following statements:

Page 5-15: "While S&P assigned PG&E's senior secured debt an investment-grade credit rating of BBB-, S&P assigned PG&E a sub-investment-grade issuer credit rating of BB-.51 This issuer credit rating was based on a "satisfactory" business risk profile and a "significant" financial risk profile—which together yield a bb+ anchor rating—and two negative modifiers.52"

Page 5-16: "S&P notes that PG&E receives a negative comparable ratings analysis modifier and "[t]he negative comparable rating analysis modifier lowers the issuer credit rating by one notch."56 Furthermore, PG&E receives a weak management and governance modifier and "[t]he assessment of management and governance as weak also lowers the issuer credit ratings by one notch."57

Page 5-17: "However, if the proposed securitization is approved, it is likely that either the business position would improve (from "satisfactory" to "strong") and/or S&P could remove one or both of the negative modifiers."

2.5.1 Please identify each of the factors of the proposed securitization that would improve PG&E's business position from "satisfactory" to "strong" and explain in detail why each factor would improve PG&E's business position.

2.5.2 Please identify each of the factors of the proposed securitization that would enable or motivate S&P to remove one or both of the negative modifiers and explain in detail why each factor would enable or motivate S&P to remove one or both of the negative modifiers.

2.5.3 Please explain in detail why a securitization of a portion of PG&E's overall debt would address the concerns that S&P expressed about weak management and governance.

2.5.4 Please identify the timeframe in which PG&E would expect to see this improvement in PG&E's S&P rating as a result of the securitization.

ANSWER 2.5

2.5.1. – 2.5.3

S&P's business risk and negative modifiers reflect S&P's subjective assessment of qualitative factors. PG&E believes that an improvement of its business risk from "satisfactory" to "strong" and/or removal of one or more negative modifiers is more likely if the proposed Securitization is approved, because that would signal a more cooperative relationship with the Commission and other stakeholders. This, in turn, could logically be interpreted as support for PG&E's financial mitigation efforts, which could extend to the expectation of a more cooperative process for addressing wildfire-related cost recovery in the future, such as pursuant to AB 1054. Support for PG&E's financial mitigation efforts, coupled with a more cooperative process for addressing wildfire-related cost recovery, will naturally be viewed favorably by the credit rating agencies. Moreover, securitization is the preferred path of PG&E's post-emergence strategic and financial plan, as it would improve its credit metrics with S&P and accelerate its path back to an investment-grade issuer rating and lower borrowing costs for the benefit of customers. Demonstration of an ability to successfully execute that component of the plan could reflect favorably on PG&E's management and governance team and its ability to provide safe and cost-effective electric service to customers, which PG&E believes could ultimately result in the removal of one or both negative modifiers or the improvement in its business position and contribute to accelerating PGE's return to an investment-grade issuer rating.

2.5.4

As set forth in Chapter 5, Stress Test Methodology (D. Thomason; J. Sauvage), served August 7, 2020, securitization would provide PG&E the opportunity to achieve an investment-grade issuer credit rating under S&P's methodology by as early as 2023 if S&P recognizes an improvement in business position or removes both negative modifiers. PG&E refers CLECA to Exhibit 5.5, Projected Financial Metrics: 2020-2024 (J. Sauvage), attached to the updated Chapter 5 testimony and to the discussion on page 5-17.

Q.2.6 omitted

Attachment C: 2020-09-16 S&P PG&E Corp. And Subsidiary Outlooks Revised to Negative on Adverse Wildfire Conditions; ‘BB-‘ Ratings Affirmed, September 16, 2020

Research Update:

PG&E Corp. And Subsidiary Outlooks Revised To Negative On Adverse Wildfire Conditions; 'BB-' Ratings Affirmed

September 16, 2020

Rating Action Overview

- Unprecedented wildfire activity throughout California at just the beginning of this wildfire season, in our view, could be indicative of a worsening environment that is more susceptible to frequent and more severe wildfires. This could increase the probability that a California investor-owned electric utility causes a catastrophic wildfire at a more regular occurrence than our prior base-case assumptions. These deteriorating conditions may also adversely affect the utility's ability to effectively manage regulatory risk.
- As such, we are revising our outlook on PG&E Corp. and subsidiary Pacific Gas & Electric Co. (Pac Gas) to negative from stable.
- We are affirming our ratings on PG&E and Pac Gas including our 'BB-' issuer credit ratings, the 'BB-' rating on PG&E's senior notes, and the 'BBB-' rating on Pac Gas' senior secured debt.
- The negative outlook reflects the accelerated rate of wildfire activity as demonstrated by the record-setting pace of California's wildfires, which is still in the early stages of the 2020 wildfire season. In our view, the lack of sufficient rainfall, the dry environment, and the ease that relatively routine wildfires can develop into catastrophic wildfires increases the likelihood that a California investor-owned electric utility could potentially be the cause of a catastrophic wildfire.

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Rating Action Rationale

The negative outlook reflects the evidence of accelerated catastrophic wildfires. Although AB 1054 establishes a wildfire fund that reduces much of the credit risk exposure associated with California's interpretation of the legal doctrine of inverse condemnation--whereby a California utility can be financially responsible for a wildfire if its facilities were a contributing cause of a wildfire, regardless of its negligence—the fund does not automatically replenish. Every catastrophic wildfire caused by a California investor-owned electric utility reduces the relative

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size of the fund, weakening credit quality. The evidence of wildfire acceleration in just the beginning of this wildfire season could, in our view, increase the probability of a California investor-owned electric utility causing a catastrophic wildfire, depleting the wildfire fund sooner than expected.

The pace of wildfires at just the beginning of this season has been unprecedented and could eventually strain available resources. To date, California has experienced more than 7,700 wildfires that have burned more than 3 million acres, damaged more than 5,300 structures and has led to more than 20 fatalities. This contrasts to 2019 when California experienced for the entire wildfire season about 7,900 wildfires, less than 260,000 acres burned, less than 750 structures destroyed, and 3 fatalities. We believe the acceleration of adverse wildfire conditions is partially affected by the 2020 below-average rainfall, which we believe could potentially signal a longer and more devastating wildfire season. While California's state agencies including the California Department of Forestry and Fire Protection have performed remarkably given the extraordinary difficult conditions, these conditions have contributed to a very difficult regulatory and political environment.

Managing regulatory risk could become more challenging. Many of California's electric customers have already faced rolling blackouts in 2020 due to the extraordinary hot weather and we expect the pace of public safety power shut-offs to accelerate, reflecting California's utilities proactively reducing the risk of causing a catastrophic wildfire. Should the frequency of these blackouts and shut-offs increase, frustrated customers and politicians could negatively affect California's investor-owned electric utilities ability to consistently manage regulatory risk.

Financial measures remain in line with expectations. We assess the company's financial risk profile using our medial volatility table, consistent with its regulated utility business. We expect 2020 funds from operations (FFO) to debt at about 15%, consistent with the lower end of the range for its financial risk profile category. Given the company's robust capital spending program of about $8 billion annually, we expect that PG&E will continue to have negative discretionary cash flow.

Environmental, social, and governance (ESG) credit factors for this credit rating change.

- Natural conditions

Outlook

The negative outlooks on PG&E and Pac Gas reflect the increased probability for a downgrade incorporating the accelerated rate of adverse wildfire activity as demonstrated by the record-setting pace of California's wildfires, which is still in the early stages of the wildfire season. In our view, the lack of sufficient rainfall, the dry environment, and the apparent ease that relatively routine wildfires can develop into a catastrophic wildfire, increases the likelihood that a California investor-owned electric utility could potentially be the cause of a catastrophic wildfire.

Downside scenario

We could downgrade PG&E and Pac Gas over the next 6 to 12 months if risks increase, such as any of California's investor-owned electric utilities are found to be the cause of a catastrophic wildfire, thereby increasing the probability that the wildfire fund could deplete sooner than expected. We

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could also lower ratings if PG&E's consolidated FFO to debt weakens to below 13%.

Upside scenario

We could affirm the ratings and revise the outlook to stable over the next 6 to 12 months if PG&E's consolidated FFO to debt is consistently above 13%, California's investor-owned electric utilities are not found to be the cause of a catastrophic wildfire, and Pac Gas consistently demonstrates effective management of regulatory risk.

Company Description

PG&E Corp. is a San Francisco-based utility holding company. Its wholly owned utility subsidiary is Pac Gas, which operates in northern and central California. Pac Gas generates revenues through the sale and delivery of electricity and natural gas to 5.5 million electric and 4.5 million gas customers and has about 7,700 MW of generation capacity. The utility is regulated by the CPUC, the Federal Energy Regulatory Commission, and the Nuclear Regulatory Commission.

Liquidity

We assess PGE's liquidity as adequate to cover its needs over the next 12 months. We expect the company's liquidity sources will exceed its uses by 1.1x, and that the company will meet our other criteria for such a designation. PG&E benefits from the preponderance of regulated utility operations that provide for stable cash flow generation. Moreover, we expect liquidity should benefit from the company's well-established and solid relationships with banks, and its likely ability to absorb high-impact, low-probability events without the need for refinancing, as evidenced by the company's ability to access the wildfire fund.

Principal Liquidity Sources

- Available cash of about $1 billion;
- Credit facility availability of $3.7 billion; and
- Cash FFO of about $2.5 billion.

Principal Liquidity Uses

- Debt maturities of about $1.5 billion over the next 12 months; and
- Maintenance capital spending of about $4 billion over the next 12 months.

Covenants

PG&E's revolver contains a debt to capital limit of 70% and Pac Gas' revolver has a debt to capital limit of 65%. We expect the companies to consistently be in compliance with these covenants and have at least 15% financial covenant headroom.

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Issue Ratings - Subordination Risk Analysis

Capital structure

PG&E has about $38 billion of debt. About $5 billion consists of senior notes at PG&E and approximately $33 billion of senior secured debt at Pac Gas that are backed by first-mortgage bonds (FMB). The secured notes will all be collateralized, backed by FMBs, and will be rated in-line with Pac Gas' senior secured issue rating.

Issue Ratings - Recovery Analysis

Key analytical factors

- Our recovery rating on Pac Gas's first-mortgage bonds and its secured revolving credit facility reflects the substantial value of the company's regulated utility assets that is sufficiently larger than the company's secured debt, limited priority claims, and other liabilities at the utility at this time. For our recovery analysis we treat the accounts-receivable securitization as a priority claim due to its senior claim to the value of the company's account receivables and the structural protections of this financing structure.
- Pac Gas' secured debt has a '1+' recovery rating, indicating our highest expectation for a full recovery, and resulting in an issue rating three notches above the issuer credit rating. The recovery rating reflects collateral coverage in excess of 150%, consistent with our criteria for recovery ratings on debt issued by regulated utilities that is secured by the key utility assets.
- We view the secured debt at PG&E as effectively unsecured because it is unguaranteed by Pac Gas and is essentially the junior-most debt liability in PG&E's consolidated capital structure, behind unsecured liabilities and preferred equity interests at Pac Gas. As such, we cap the recovery rating on this debt at '3', consistent with our approach to rating unsecured debt issued by companies with an issuer credit rating of 'BB-' or higher.
- The '3' recovery rating cap recognizes that 'BB' category entities are more likely to significantly increase debt before default and that recovery prospects for unsecured debt are most likely to be impaired by additional debt. Further, claims of PG&E's debt would be structurally junior to potential non-debt liabilities at Pac Gas, including future potential wildfire liabilities. Notwithstanding the cap, based on PG&E's current capital structure, the recovery rate on PG&E's debt could be higher than the 50%-70% indicated by our '3' recovery rating.
- A default scenario could stem from sudden liquidity pressure from an unpredictable weather, cost, or market event outside of the company's control, consistent with past utility defaults. Further it could reflect significant future litigation exposure at Pac Gas, consistent with PG&E's prior default.
- We expect Pac Gas to continue to operate and reorganize after default given the essential nature of its services. We also assume the value of the utility's assets will be preserved and we use the net value of its regulated fixed assets as a proxy for the company's enterprise value. The company's regulated asset value is currently roughly $66 billion.

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Simulated default assumptions

- Simulated year of default: 2024
- Gross enterprise value--discrete asset valuation (DAV) approach: $66 billion
- Valuation split—PG&E/Pac Gas: 0%/100%

Simplified waterfall

- Net recovery value after administrative costs (5%): $62 billion
- Pac Gas value: $62 billion
- Priority claims at Pac Gas (A/R securitization): $1 billion
- Secured debt claims at Pac Gas (FMBs and bank debt): $37 billion
- Recovery estimate: 100%
- Residual value available to Pac Gas equity: $24 billion
- Pac Gas Preferred Stock claims: $250 million
- Residual value available to Parent creditors: $24 billion
- Debt claims at Parent (effectively unsecured): $5.3 billion
- --Recovery range: Capped at 50%-70%; rounded estimate: 65%

Notes: Debt amounts include six months of accrued interest that we assume will be owed at default. We assume the cash flow revolvers at Pac Gas ($3.5 billion) and PG&E ($500 million) at 85% utilized at default and that the $1 billion accounts receivable securitization is fully utilized. We assume any debt maturing before default is refinanced on similar terms before maturity.

Ratings Score Snapshot

Issuer Credit Rating: BB-/Negative/--

Business risk: Satisfactory

- Country risk: Very low
- Industry risk: Very low
- Competitive position: Fair

Financial risk: Significant

- Cash flow/Leverage: Significant

Anchor: bb+

Modifiers

- Diversification/Portfolio effect: Neutral (no impact)
- Capital structure: Neutral (no impact)

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- Financial policy: Neutral (no impact)
- Liquidity: Adequate (no impact)
- Management and governance: Weak (-1 notch)
- Comparable rating analysis: Negative (-1 notch)

Stand-alone credit profile: bb-

- Group credit profile: bb-

Related Criteria

- General Criteria: Group Rating Methodology, July 1, 2019
- General Criteria: Hybrid Capital: Methodology And Assumptions, July 1, 2019
- Criteria | Corporates | General: Corporate Methodology: Ratios And Adjustments, April 1, 2019
- General Criteria: Methodology For Linking Long-Term And Short-Term Ratings, April 7, 2017
- Criteria | Corporates | General: Recovery Rating Criteria For Speculative-Grade Corporate Issuers, Dec. 7, 2016
- Criteria | Corporates | General: Methodology And Assumptions: Liquidity Descriptors For Global Corporate Issuers, Dec. 16, 2014
- Criteria | Corporates | Utilities: Key Credit Factors For The Regulated Utilities Industry, Nov. 19, 2013
- Criteria | Corporates | General: Corporate Methodology, Nov. 19, 2013
- General Criteria: Country Risk Assessment Methodology And Assumptions, Nov. 19, 2013
- General Criteria: Methodology: Industry Risk, Nov. 19, 2013
- Criteria | Corporates | Utilities: Collateral Coverage And Issue Notching Rules For '1+' And '1' Recovery Ratings On Senior Bonds Secured By Utility Real Property, Feb. 14, 2013
- General Criteria: Methodology: Management And Governance Credit Factors For Corporate Entities, Nov. 13, 2012
- General Criteria: Principles Of Credit Ratings, Feb. 16, 2011

Ratings List

Ratings Affirmed/Outlook Action

	To	From
PG&E Corp.		
Pacific Gas & Electric Co.		
Issuer Credit Rating	BB-/Negative/NR	BB-/Stable/NR

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Ratings Affirmed/Outlook Action (cont.)

Ratings Affirmed; Recovery Rating Unchanged

PG&E Corp.	
Senior Secured	BB-
Recovery Rating	3(65%)
Pacific Gas & Electric Co.	
Senior Secured	BBB-
Recovery Rating	1+

Certain terms used in this report, particularly certain adjectives used to express our view on rating relevant factors, have specific meanings ascribed to them in our criteria, and should therefore be read in conjunction with such criteria. Please see Ratings Criteria at www.standardandpoors.com for further information. Complete ratings information is available to subscribers of RatingsDirect at www.capitaliq.com. All ratings affected by this rating action can be found on S&P Global Ratings' public website at www.standardandpoors.com. Use the Ratings search box located in the left column.

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Attachment D: Moody’s, 2020-08-19 FAQ on what’s next after emergence from bankruptcy

MOODY'S
INVESTORS SERVICE

ISSUER IN-DEPTH
19 August 2020

PG&E Corporation

FAQ on what's next after emergence from bankruptcy

RATINGS

PG&E Corporation

Corporate family rating	Ba2
Outlook	Stable

Pacific Gas & Electric Company

First mortgage bonds	Baa3
Preferred stock	B1
Outlook	Stable

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» **Ability to mitigate wildfire risk to be key determinant of credit quality.** PG&E Corporation's (Ba2 stable) ability to improve its credit quality will depend heavily on whether it can mitigate the risk of wildfires in its service territory. This will require substantial financing through the issuance of new debt. If the company is not able to recover future costs and investments related to wildfire mitigation in a timely manner, its financial performance will deteriorate. While climate models are subject to change as mitigating efforts alter projected trajectories, they currently suggest that California faces rising wildfire risk over the next three decades, regardless of greenhouse gas mitigation efforts.

» **Credit quality would deteriorate if equipment failures were to trigger another string of catastrophic wildfires in its service territory.** Although the wildfire fund established by California Assembly Bill 1054 (AB 1054) was set up to mitigate the financial impact a major wildfire can have on a utility, catastrophic wildfires over a multi-year period could potentially exhaust the fund. Moreover, the liability cap in place would lapse upon the fund's depletion, which would make AB 1054 less credit supportive for California utilities. However, a single catastrophic fire this year would unlikely have an immediate material financial impact on PG&E, given the current full availability of the wildfire fund and the time it takes to determine both the cause of a fire and the amount of damages that the utility must pay.

» **PG&E will have ample opportunity to strengthen key credit metrics if it does not incur wildfire-related liabilities.** Rate base growth through the significant infrastructure investments required will improve cash flow generation. At the same time, we expect PG&E to be able to use any residual cash flow remaining after capital investments to pay down holding company debt, given that the company is prohibited from distributing dividends to shareholders until at least 2023. PG&E's $2.75 billion term loan maturing in 2025 provides increased financial flexibility to reduce leverage by paying off this debt either partially or in full ahead of maturity.

» **Proposed securitization financing to be credit neutral**. We typically view a utility's use of securitization bonds as a credit positive financing tool. But PG&E is proposing to establish a customer credit trust that will be used to provide customers with bill credits to offset the securitization bond principal and interest charges annually. PG&E expects to fund the customer credit trust largely through cash flow generated from tax benefits created by paying past wildfire-related claims.

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Ability to mitigate wildfire risk to be key determinant of credit quality

On 1 July 2020, PG&E Corporation and its principal utility subsidiary, Pacific Gas & Electric Company (PG&E, Baa3 first mortgage bonds stable) exited from bankruptcy. Upon plan confirmation and the fulfillment of AB 1054 requirements, PG&E will be able to participate in California's wildfire fund and benefit from other credit supportive provisions incorporated in the law.

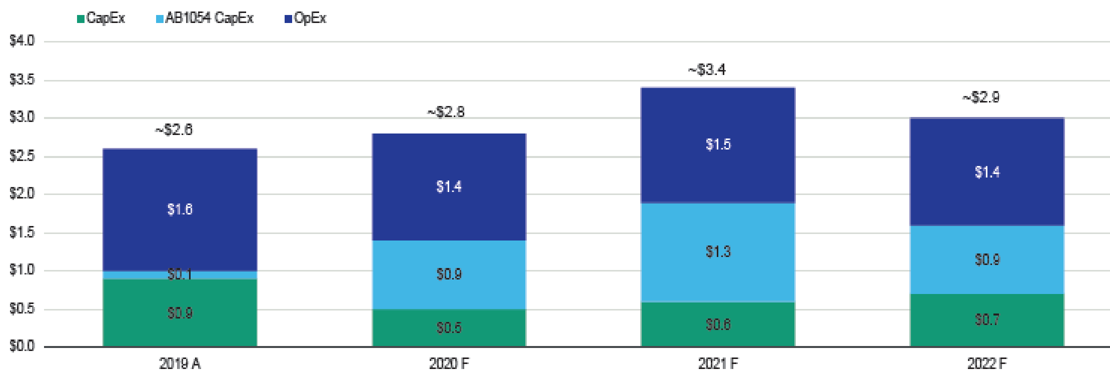
PG&E's ability to improve its credit quality will depend heavily on whether it can mitigate the risk of wildfires in its service territory. The company plans to make significant investments in its infrastructure in the years ahead, particularly around wildfire mitigation. This will require substantial financing through the issuance of new debt. If PG&E is not able to recover future costs and investments related to wildfire mitigation in a timely manner, the company's financial performance will deteriorate.

Can PG&E reduce the risk of wildfires in its service territory?

Only time will tell. PG&E continues to invest significantly on wildfire mitigation, including system hardening, enhanced inspections and vegetation management, and has a plan to regionalize its operations to increase its focus on local communities. The company is endeavoring to develop an effective wildfire mitigation program through the establishment of a fire hardened electric system that is rigorously inspected and maintained. With these efforts, PG&E is striving to emulate San Diego Gas & Electric Company (SDG&E, Baa1 positive), which has had a relatively long and successful track record of wildfire mitigation, albeit in a considerably smaller service territory with different topography.

PG&E continues to invest in monitoring equipment to improve situational awareness of its network to anticipate, prepare for and react to extreme weather conditions. As part of the company's approximately $6.2 billion in wildfire mitigation investments being made during 2020-2021, PG&E plans to install an additional 400 weather stations and 200 high-definition cameras by the end of the year and a total of 1,300 weather stations and 600 HD cameras by the end of 2021. SDG&E has used these and other technologies to substantially reduce wildfire risk in its service territory since it last contended with major wildfires in 2007.

Exhibit 1
PG&E's wildfire mitigation plan includes significant annual investments
($ in billions)



Source: PG&E Corporation

In June, PG&E filed a regional restructuring plan application with the California Public Utilities Commission (CPUC) to provide greater accountability at the local level. This regionalization model is aimed at improving safety and responsiveness to customers and local communities, such as by replacing faulty equipment more quickly and reducing outage response times, particularly when utilizing public safety power shutoffs.

Over the long term, climate change is likely to increase the risk of wildfires in California. Cal-Adapt, a state-funded climate data tool maintained by the University of California at Berkeley, models a 10.6% increase in the number of square miles at risk in PG&E's service

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territory over the next 30 years, compared to the previous 13 years. Exhibit 2 illustrates the outcomes of Cal-Adapt's model, which uses representative concentration pathways (RCPs) as adopted by the United Nations' Intergovernmental Panel on Climate Change. Cal-Adapt's model does not include the impact of high winds in certain parts of the state.

While climate models are subject to change as mitigating efforts alter projected trajectories, they continue to point to a statewide increase in wildfire risk over the next three decades. Physical climate risks, like rising temperatures and declining or variable precipitation, which can create hotter and drier conditions, are largely locked in globally until 2050 (see "ESG – Global: Climate scenarios vital to assess credit impact of carbon transition, physical risks"). Hence, We expect wildfire risks to intensify regardless of greenhouse gas mitigation efforts. Beyond 2050, carbon mitigation might be able to reduce the risk of climate hazards that contribute to wildfires.

Exhibit 2

Cal-Adapt projects an increase in square miles at risk of wildfires over the next 30 years

Cal-Adapt data using RCP 8.5 as base case	California (State of)	PG&E (utlity)
Issuer rating	Aa2	NA
Senior Secured	NA	Baa3
Outlook	Stable	Stable
Service area size in square miles	163,695	70,000
Annual mean square miles at risk per Cal-Adapt		
1950-2005	664	379
2006-19	767	416
2020-50	817	461
2050-99 (RCP 8.5)**	1,094	651
2050-99 (RCP 4.5)**	920	535
Risk over last 13 years compared to prior 55 years	15.6%	9.9%
Future risk in next 30 years compared to last 13 years	6.5%	10.6%
Long-term risk 2050-99 compared to 2006-19 with no GHG mitigation efforts	42.7%	56.4%
Long-term risk 2050-99 compared to 2006-19 with GHG mitigation efforts; GHG emissions peak in 2040 before declining thereafter	20.0%	28.5%
% of service territory at risk per Cal-Adapt		
1950-2005	0.41%	0.54%
2006-19	0.47%	0.59%
2020-50	0.50%	0.66%
2050-99 (RCP 8.5)**	0.67%	0.93%
2050-99 (RCP 4.5)**	0.56%	0.76%

We assume the service territory at risk equals the variable square miles projected to be burned over the constant total service area. Lack of clarity in Cal-Adapt public site.
** We assume RCP 8.5 (high emissions scenario) as Moody's global scenario up to 2050 due to "locked in" effects of climate change. After 2050, one can differentiate between RCP 8.5 (high emissions scenario) vs RCP 4.5 (a scenario with GHG emissions mitigation).
Note: Exhibit includes partial data from exhibit initially published in "Public Power Electric Utilities – California: Rising wildfire risks manageable for CA publicly owned electric utilities, except in extreme scenarios."
Source: Cal-Adapt

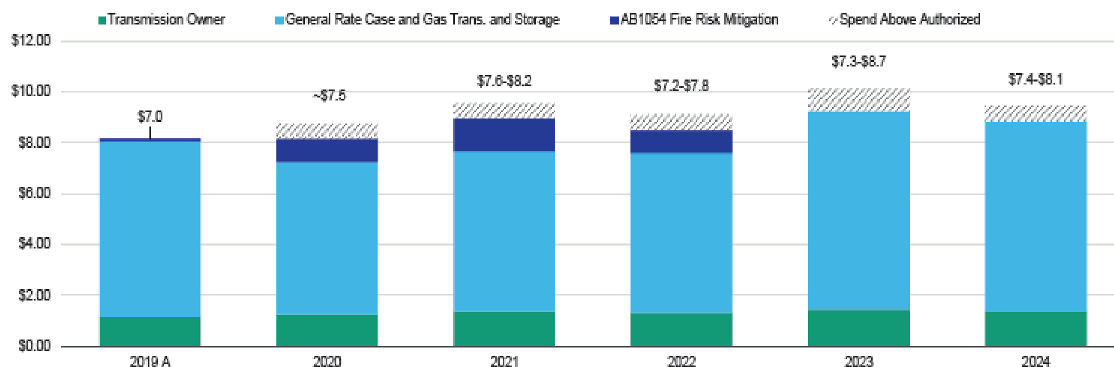
What factors could erode PG&E's credit quality?

PG&E's credit quality would deteriorate if equipment problems were to trigger another string of catastrophic wildfires in its service territory, akin to what the utility experienced from 2015 through 2018. During 2017 and 2018, faulty PG&E equipment was linked to at least 17 major wildfires, causing more than $30 billion in damages. Although the wildfire fund established by AB 1054 was set up to mitigate the financial impact a major wildfire can have on a utility, catastrophic wildfires over a multiyear period could potentially exhaust the fund. Moreover, the liability cap in place would lapse upon the fund's depletion, which would make AB 1054 less credit supportive for California utilities (see "Regulated electric and gas utilities – US: California's wildfire fund is sufficiently capitalized to pay out claims").

AB 1054 remains untested. If there is an unexpected failure by state regulators to effectively implement the law's credit supportive mechanisms, such as a revised prudency standard, the credit quality of PG&E and California's other investor-owned utilities would deteriorate. In the event of a wildfire, the utility is presumed to have acted prudently unless intervenors create a serious doubt as to the reasonableness of the utility's conduct. Furthermore, the CPUC can also consider factors that are beyond the utility's control, such as weather conditions like humidity, temperature and wind. The revised prudency standard appears to be more consistent with that of the Federal Energy Regulatory Commission (FERC), which we view as more constructive.

Poor operational performance or less than timely recovery of costs and investments would also impair PG&E's credit quality. In addition to its wildfire mitigation investments, the utility will undertake substantial capital investment projects to construct, replace, and improve its electricity and natural gas facilities. The investments are being financed with a mix of about half equity and half debt. Over the 2020-2022 period included in its recent general rate case settlement, PG&E plans to invest an average of $4.6 billion a year in electric and natural gas distribution, as well as generation infrastructure. The settlement agreement, which is awaiting CPUC final approval, includes revenue requirement increases of $454 million in 2021 and $486 million in 2022 for PG&E's gas and electric distribution service. PG&E's electric transmission and natural gas transmission and storage investments are recovered through separate FERC regulatory proceedings. Besides the approved wildfire mitigation investments that the company will not earn an equity return on pursuant to AB 1054, recovery of additional capital investments above authorized levels will be addressed in future rate case proceedings. A delay or inability to earn a return on and of investments would weaken the company's financial profile during this period.

Exhibit 3
PG&E's increasing capital investment plans will require substantial new debt issuance
($ in billions)



Source: PG&E Corporation

Would a catastrophic wildfire in PG&E's service territory this year hurt its credit quality?

Yes, but a new wildfire would likely increase social and reputational risk more than financial risk. Because of PG&E's history of safety problems, the company already faces greater social risk than most of its regulated electric and gas utility peers. PG&E needs to regain the trust of California regulators, state policymakers and, most importantly, its customers. The company's involvement in another catastrophic wildfire would also signal that its wildfire mitigation efforts continue to severely lag those of its peers, which would be credit negative. However, a catastrophic fire this year would be less likely to have an immediate material financial impact on the company.

First, it can take many months to determine how a wildfire was ignited. For example, the California Department of Forestry and Fire Protection (Cal Fire), the agency that investigates fires in the state and determines the cause of ignition, announced on 16 July that it had determined – about eight months after the fact – that faulty electrical transmission lines owned and operated by PG&E had sparked the 2019 Kincade fire in Sonoma County (see "CAL FIRE's determination that PG&E equipment caused the 2019 Kincade fire has no material financial impact"). In the case of the 2017 Tubbs fire, one of the largest wildfires that year, it took Cal Fire about 16 months to conclude its investigation.

Second, it can take even longer for most claims to be filed in the wake of a major wildfire to calculate a reasonable estimate of the impact on an investor-owned utility's financial profile. Finally, and most important, AB 1054's credit supportive provisions, including its wildfire insurance fund, are intended to help mitigate the financial burden a wildfire event could have on credit quality. The wildfire insurance fund provides a utility with immediate access to a substantial liquidity resource to cover potential damages caused by a future catastrophic wildfire ignited by its equipment, when the damages exceed the greater of $1 billion or the utility's insurance coverage.

Finally, AB 1054 includes other important provisions including a liability cap calculated as 20% of the utility's equity portion of its transmission and distribution (T&D) rate base over any three-year period. The state's utilities should also benefit from a more favorable prudency standard and a more expedient subrogation claims settlement process. If the wildfire insurance fund's claims paying capability is ultimately exhausted, the disallowance cap will no longer be available, but the more favorable prudency standard will remain. We note that, although AB 1054 includes these credit supportive mechanisms, it has yet to be tested in its application in response to a wildfire event (see the "Regulated electric utilities – US: FAQ on the credit implications of California's new wildfire law").

What could improve PG&E's credit?

PG&E's credit quality will improve with each passing year as long as operational improvements and mitigation investments prevent the outbreak of catastrophic wildfires in its service territory. While there are many variables involved in the ignition and spread of wildfires, PG&E will likely have to get through at least three years without a catastrophic wild fire in order to adequately demonstrate that it has substantially reduced its exposure to wildfire risk. Improved pre-incident planning and coordination with local authorities to help contain the spread of fires before they exact a significant toll on customers and property would go a long way toward restoring confidence in the utility's mitigation efforts.

The company also has to address near-term governance risks. PG&E's senior management and financial policies are in a period of transition following the company's 1 July emergence from bankruptcy protection for the second time in two decades. Eleven of the 14 members on PG&E's board of directors were appointed in June. The company asserts that the new board members bring expertise in key areas, such as utility operations and management, safety and environment, risk management, customer engagement and corporate governance.

The revamped board has been tasked with the search for a new chief executive for both the parent company and the operating subsidiary following the 30 June retirement of PG&E Corporation CEO and president William D. "Bill" Johnson and the 30 July departure of PG&E CEO Andy Vesey (see "PG&E Corporation: Utility subsidiary's CEO departure adds to heightened governance risk"). While the opportunity to run such a large investor-owned utility would normally draw strong interest from a deep pool of experienced candidates, PG&E's checkered recent history and its myriad operational and regulatory issues may pose challenges for the search.

Can PG&E improve its financial profile over the next 12 to 18 months?

We think the company will have substantial opportunity to strengthen its key credit metrics if it does not incur material liabilities arising from a catastrophic wildfire. Rate base growth through significant infrastructure investments will improve cash flow generation. At the same time, we expect PG&E to be able to use any residual cash flow remaining after capital investments to pay down holding company debt, given that the company is prohibited from distributing dividends to shareholders until at least 2023. Strengthening the company's financial profile is an important credit consideration, but it is less of a priority than mitigating wildfire risk and improving stakeholder relationships.

As part of the plan of reorganization, the bankruptcy court approved a motion filed by PG&E to restrict shareholder dividends. PG&E is precluded from paying common dividends to equity holders until the company has recognized $6.2 billion in non-GAAP core earnings, or GAAP earnings adjusted for certain non-core items identified in a separate disclosure statement. As such, we do not expect the dividend restriction to be lifted until sometime in 2023. While the ability to pay shareholder dividends is a common practice of investment-grade utility holding companies, the dividend restriction will enable PG&E to retain cash and use residual funds available after capital investments to pay down debt, which is credit positive.

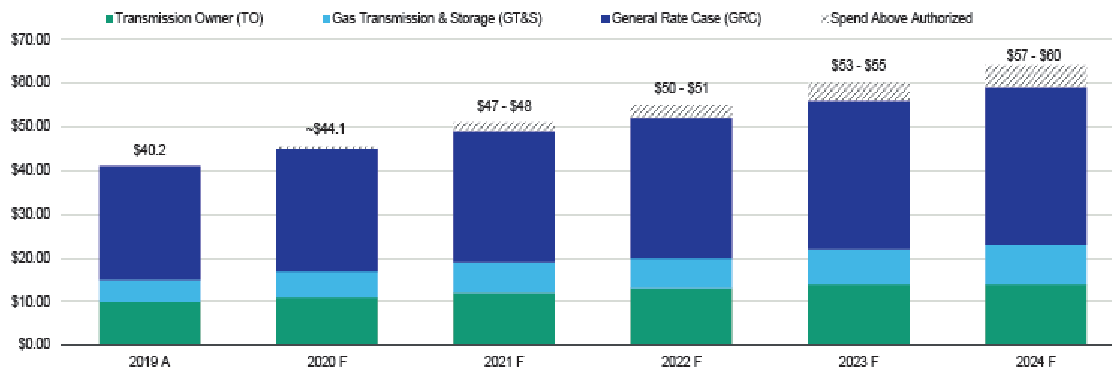
As part of the company's exit financing, PG&E Corporation entered into a $2.75 billion term loan maturing in 2025 as well as issuing $2 billion in notes, half of which mature in 2028 and 2030. The term loan offers the company increased financial flexibility to reduce leverage by paying off this debt either partially or in full ahead of maturity. Upon exit, we estimate parent debt to represent about

12% of consolidated debt. However, we expect parent debt to gradually decline over the next few years as the company has disclosed that it expects to pay down about $2.5 billion of holding company debt by 2023. Through increased cash flow generation and debt reduction, particularly at the parent level, we expect the companies' financial profiles to gradually strengthen, such that we project PG&E Corporation's ratio of cash flow from operations pre-working capital changes (CFO pre-W/C) to debt to increase from about 12% in 2021 to 15% in 2023. Similarly, we project the operating company's ratio of (CFO pre-W/C) to debt to increase from about 14% to 16% over the same period.

Exhibit 4

PG&E's weighted average rate base forecast should drive increased cash flow generation

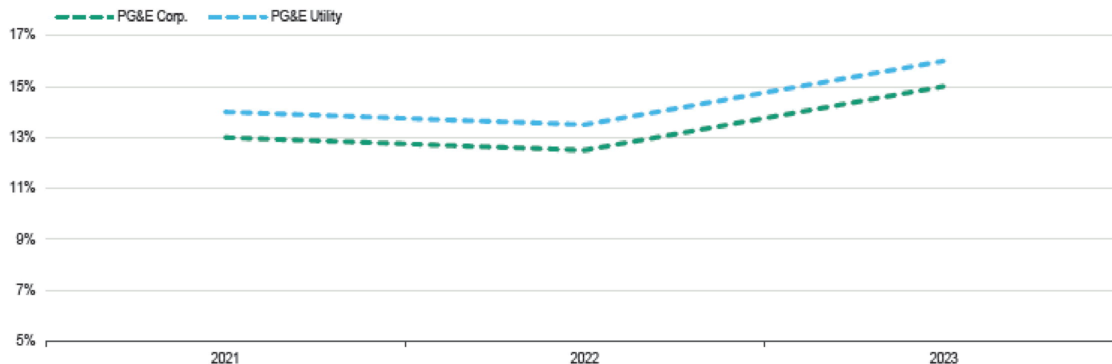
($ in billions)



Source: PG&E Corporation

Exhibit 5

Moody's projected ratio of CFO pre-WC/debt for PG&E Corp. and PG&E during the 2021-2023 period



Source: Moody's Investors Service

What are the credit implications of PG&E's proposed $7.5 billion securitization financing?

PG&E is seeking CPUC approval to issue $7.5 billion in rate-neutral securitization bonds to be issued in the first half of 2021. If the CPUC approves the plan, the proceeds from the securitization bonds would be used to pay down $6 billion of temporary debt and the CPUC would not consider it as a permanent debt component within the utility's regulated capital structure.

We typically view securitization bonds as a credit positive financing tool (see "Regulated utilities – US: Utility cost recovery through securitization is credit positive"). However, unlike traditional utility securitization structures in which the customer is the ultimate payor of the principal and interest on the bonds, PG&E is proposing this securitization structure to be rate-neutral to customers. Although specific details on the structure have yet to be finalized or approved, PG&E is proposing to establish a customer credit trust that will

be used to provide customers with bill credits to offset the securitization bond principal and interest charges annually. PG&E expects to fund the customer credit trust largely through cash flows generated from tax benefits created by paying past wildfire-related claims. The credit offset back to customers will reduce PG&E's revenues and cash flows while the securitization bonds would be considered as on-credit debt and reflected in our key credit metrics. Credit metrics will, however, benefit from the amortizing nature of the bonds.

Moody's related publications

Credit Opinion

- PG&E Corporation: Update to credit profile upon exit from bankruptcy, 16 June 2020

Issuer Comment

- PGE& Corporation: Utility subsidiary's CEO departure adds to heightened governance risk, 30 July 2020
- PG&E Corporation: CAL FIRE's determination that PG&E equipment caused the 2019 Kincade fire has no material financial impact, 17 July 2020

Sector Comments

- Regulated electric utilities – North America: Bill proposing fines for power shutoffs is credit negative for California utilities, 31 January 2020
- Regulated electric and gas utilities – US: California's wildfire fund is sufficiently capitalized to pay out claims, 20 November 2019
- Regulated electric utilities – California: Customer bill credits after power shutoffs signal weakening political support, 31 October 2019
- ESG - California: Public safety power shutoffs highlight links between environmental and social risks, 28 October 2019
- Regulated electric utilities – US: Proposed California wildfire risk legislation is credit positive but questions remain, 10 July 2019
- Electric utilities – US: Limiting utility liabilities looms large after release of SB 901 Commission draft report, 4 June 2019
- Regulated electric utilities – US: California wildfire strike force report is credit positive, but details are still pending, 15 April 2019

Sector In-Depth

- Public Power Electric Utilities – California: Rising wildfire risks manageable for CA publicly owned electric utilities, except in extreme scenarios, 27 May 2020
- Regulated electric utilities – US: FAQ on the credit implications of California's new wildfire law, 6 August 2019
- Electric and Gas Utilities - US: California utilities struggle with inverse condemnation exposure, 15 April 2019
- Electric Utilities - US: Potential remedies to reduce California fire risk face competing interests, 3 April 2019

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REPORT NUMBER 1239753

MOODY'S
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Attachment E: Wall Street Journal, PG&E Equipment Might Have Ignited Northern California Wildfire, October 9, 2020

U.S.

PG&E Equipment Might Have Ignited Northern California Wildfire

Utility said fire investigators have taken possession of power line equipment as part of probe into Zogg Fire's origins

PG&E workers inspected a site in St. Helen, Calif., on Sept. 30. More than 3.8 million acres in the state have been scorched by a total of more than 8,100 fires this year.

PHOTO: JUSTIN SULLIVAN/GETTY IMAGES

By Katherine Blunt

Updated Oct. 9, 2020 8:23 pm ET

Listen to this article

3 minutes

PG&E Corp. told California regulators that its power equipment might have contributed to igniting a recent wildfire that has killed four people.

The utility disclosed in securities filings that it notified the California Public Utilities Commission on Friday it had recorded alarms on certain equipment supporting a power line that served an area east of Redding, Calif., where the Zogg Fire is believed to have originated in Shasta County, near Oregon.

The fire has burned more than 56,000 acres and destroyed 204 structures since it started late last month, according to the California Department of Forestry and Fire Protection. The blaze, which forced evacuations in the area, was almost fully contained as of Friday, according to Cal Fire.

PG&E said state fire investigators have taken possession of some of its equipment as part of their probe into the cause of the fire. The company said the information is preliminary and that it has no information about the cause of the fire. It said it doesn't have access to Cal Fire evidence and that it is cooperating with the investigation.

"We recognize the tragic losses sustained as a result of this year's fire season and are thankful as always for the efforts of the first responders who have worked tirelessly to contain the fires and protect the lives and property of California residents," the company said.

If PG&E's equipment is found responsible for the fire, it could face substantial liability-related costs just months after emerging from bankruptcy. The company sought chapter 11 protection in January 2019 as it grappled with billions of dollars in wildfire-related liability costs. The company's equipment sparked a series of destructive wildfires in 2017 and 2018 that collectively killed more than 100 people and burned more than 15,000 homes in Northern California.

PG&E has been working to make its electric grid safer and trim trees away from power lines to reduce the risk of its equipment sparking more wildfires. The company has resorted to pre-emptively shutting off power when wind speeds pick up, which raises fire risks.

California has suffered an unprecedented spate of wildfires this year. More than 3.8 million acres have been scorched by a total of more than 8,100 fires, according to Cal Fire. Since mid-August, at least 29 people have died.

Severe weather conditions have given rise to the blazes in California and across the western U.S., with record-setting heat, gusty winds and dry vegetation fueling fast-spreading blazes. Scientists say the most significant causes are poor forest management and climate change, which causes higher temperatures and longer droughts.

Write to Katherine Blunt at Katherine.Blunt@wsj.com

Appeared in the October 10, 2020, print edition as 'PG&E Says Its Gear May Be Tied to Wildfire.'

Attachment F: PG&E Response to TURN data request No. 1, Question 5(e)

QUESTION 05

On p. 6-18, PG&E states:

> "Across the full range of 2,000 simulations generated by the model, the Customer Credit Trust had a positive terminal balance in roughly 75 percent of the outcomes."

a. Please provide a live version of the model supporting Confidential Testimony Table 6-7. Range of Surplus Outcomes and Year of First Shortfall.

b. Please provide all supporting documentation and data for the model's assumptions, including those in Confidential Testimony Table 6-4. Callan Long Term Capital Market Projections – Return and Standard Deviation and Confidential Testimony Table 6-5. Callan Long Term Capital Market Projections – Correlation.

c. Please provide the results of all 2000 simulations in excel format.

d. Did all of the original simulations discussed above include the same assumptions regarding the amount and timing of the initial and additional shareholder contributions? If not how did the assumptions vary and why?

e. If the answer to part a is yes, did any of the simulations examined include "Additional Shareholder Contributions different from the $7.59 billion "cap?" If so please explain the different amounts and the reason for these differences in Additional Shareholder Contributions.

f. Please provide all documents pertaining to the modeling that were exchanged between Callan and PG&E.

ANSWER 05

On August 7, 2020, PG&E served updated prepared testimony in this proceeding. The language quoted in this request has been updated as follows in Chapter 6, Customer Credit Mechanism and Investment Returns (D. Thomason; G. Allen), at page 6-21: "Across the full range of 2,000 simulations generated by the model, the Customer Credit Trust had a positive terminal balance in roughly 84 percent of the outcomes." PG&E's response incorporates this updated language.

PG&E objects to this request as vague, ambiguous, and unduly burdensome. The model supporting Table 6-7 requires the use of proprietary software over which PG&E does not possess a license and cannot grant a license to TURN. PG&E further objects to this request as overbroad and as seeking information protected by the attorney-client privilege and/or attorney work product doctrine. PG&E's response excludes any privileged information or attorney work product. Subject to its objections, PG&E responds as follows:

a. In accordance with Rules 10.4(d) and (e), PG&E will meet and confer with TURN to arrange access to, or sufficient use of, the model that supports Mr. Allen's testimony.

b. *See* 2020Securitization_DR_Misc_Chapter 6_Capital Markets Assumptions 2020-FullDeck_master_021220.pdf; 2020Securitization_DR_Misc_Chapter 6_Callan-Capital-

Market-Assumptions-2020-2029.pdf; 2020Securitization_DR_Misc_Chapters 3_6_7_UPDATED08-07-2020_Securitization Application Update Model_Final.xlsx.

c. *See* 2020Securitization_DR_Misc_Chapter 6_UPDATED08-07-2020_All Trials.xlsx.

d. Yes.

e. Assuming this question is meant to refer to the answer to part d. being yes, none of the simulations referenced on p. 6-21 of Mr. Allen's testimony included Additional Shareholder Contributions different from the $7.59 billion cap.

f. Mr. Allen requested information from PG&E regarding the tax treatment of the nuclear decommissioning trusts. *See* 2020Securitization_DR_TURN_01-Q05_2019 Estimated Tax PymtsCONF.xls.

Q&A 6 are omitted

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10 **Attachment A: Qualifications of Catherine E. Yap**
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12

Attachment A

Qualifications of Catherine E. Yap

Q1. Please state your name and business address.

A1. My name is Catherine E. Yap and my address is Barkovich & Yap, Inc., P.O. Box 11031, Oakland, California 94611.

Q2. Please state your qualifications to offer this testimony.

A2. I am a principal in the firm of Barkovich & Yap, Inc., and have been consulting in the utility regulatory area for over thirty years. During this time, I have directed and/or performed major examinations of cost-of-service requirements, allocation, rate design, and customer bill effects for electric, natural gas, and solid waste utilities. I have testified on numerous occasions before the California Public Utilities Commission (Commission) and in civil proceedings. I have consulted internationally on issues related to natural gas industry structure and marginal cost allocation and rate design.

Prior to this, I was employed for nine years by the Commission. Most recently, I was responsible for managing the Energy Rate Design and Economics Branch of the Public Staff Division (PSD). This branch was responsible for developing cost of service, rate design, and economic studies, such as sales forecasting and productivity assessment, for both electric and gas utilities. Members of the branch were responsible for presenting expert testimony, developing cost of service studies, and designing unbundled rates for the natural gas utilities during the Commission's extensive hearings on gas industry structure and rate design implementation. During this time, I participated extensively in the formulation of policy regarding the appropriate structure for the natural gas industry in California.

Previously, I was the Supervisor of the Gas Supply and Requirements Section of the Fuels Branch of the PSD. I was responsible for directing, and in some cases performing, advanced technical studies that evaluated California gas utility operations and associated contracts, investments, and expenses. I also acted as the highest level technical representative of the Commission on natural gas matters and was involved in numerous negotiated settlements involving natural gas pipelines, distribution utilities, producers, and state and federal regulatory agencies.

1 Prior to that, I was a staff economist in the Policy Division acting as a consultant to the
2 Executive Director and to various Commissioners. I also testified on numerous occasions
3 as an expert witness regarding a variety of technical, economic, and financial matters
4 related to electric and natural gas utilities.

5 I have a B.A. in chemical physics from the University of California at Santa Cruz, and a
6 M.S. in Energy and Resources from the University of California at Berkeley. I have also
7 taken course work in finance, accounting, and organization theory from the University of
8 California, Extension, and Golden Gate University.

9

Attachment B: PG&E Response to CLECA-02, Question 2.5.

Response to Q.2.4 omitted

QUESTION 2.5

Regarding the following statements:

Page 5-15: "While S&P assigned PG&E's senior secured debt an investment-grade credit rating of BBB-, S&P assigned PG&E a sub-investment-grade issuer credit rating of BB-.51 This issuer credit rating was based on a "satisfactory" business risk profile and a "significant" financial risk profile—which together yield a bb+ anchor rating—and two negative modifiers.52"

Page 5-16: "S&P notes that PG&E receives a negative comparable ratings analysis modifier and "[t]he negative comparable rating analysis modifier lowers the issuer credit rating by one notch."56 Furthermore, PG&E receives a weak management and governance modifier and "[t]he assessment of management and governance as weak also lowers the issuer credit ratings by one notch."57

Page 5-17: "However, if the proposed securitization is approved, it is likely that either the business position would improve (from "satisfactory" to "strong") and/or S&P could remove one or both of the negative modifiers."

2.5.1 Please identify each of the factors of the proposed securitization that would improve PG&E's business position from "satisfactory" to "strong" and explain in detail why each factor would improve PG&E's business position.

2.5.2 Please identify each of the factors of the proposed securitization that would enable or motivate S&P to remove one or both of the negative modifiers and explain in detail why each factor would enable or motivate S&P to remove one or both of the negative modifiers.

2.5.3 Please explain in detail why a securitization of a portion of PG&E's overall debt would address the concerns that S&P expressed about weak management and governance.

2.5.4 Please identify the timeframe in which PG&E would expect to see this improvement in PG&E's S&P rating as a result of the securitization.

Answer 2.5

2.5.1. – 2.5.3

S&P's business risk and negative modifiers reflect S&P's subjective assessment of qualitative factors. PG&E believes that an improvement of its business risk from "satisfactory" to "strong" and/or removal of one or more negative modifiers is more likely if the proposed Securitization is approved, because that would signal a more cooperative relationship with the Commission and other stakeholders. This, in turn, could logically be interpreted as support for PG&E's financial mitigation efforts, which could extend to the expectation of a more cooperative process for addressing wildfire-related cost recovery in the future, such as pursuant to AB 1054. Support for PG&E's financial mitigation efforts, coupled with a more cooperative process for addressing wildfire-related cost recovery, will naturally be viewed favorably by the credit rating agencies. Moreover, securitization is the preferred path of PG&E's post-emergence strategic and financial plan, as it would improve its credit metrics with S&P and accelerate its path back to an investment-grade issuer rating and lower borrowing costs for the benefit of customers. Demonstration of an ability to successfully execute that component of the plan could reflect favorably on PG&E's management and governance team and its ability to provide safe and cost-effective electric service to customers, which PG&E believes could ultimately result in the removal of one or both negative modifiers or the improvement in its business position and contribute to accelerating PGE's return to an investment-grade issuer rating.

2.5.4

As set forth in Chapter 5, Stress Test Methodology (D. Thomason; J. Sauvage), served August 7, 2020, securitization would provide PG&E the opportunity to achieve an investment-grade issuer credit rating under S&P's methodology by as early as 2023 if S&P recognizes an improvement in business position or removes both negative modifiers. PG&E refers CLECA to Exhibit 5.5, Projected Financial Metrics: 2020-2024 (J. Sauvage), attached to the updated Chapter 5 testimony and to the discussion on page 5-17.

Q.2.6 omitted

Attachment C: 2020-09-16 S&P PG&E Corp. And Subsidiary Outlooks Revised to Negative on Adverse Wildfire Conditions; 'BB-' Ratings Affirmed, September 16, 2020

S&P Global
Ratings

RatingsDirect®

Research Update:

PG&E Corp. And Subsidiary Outlooks Revised To Negative On Adverse Wildfire Conditions; 'BB-' Ratings Affirmed

September 16, 2020

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Rating Action Overview

- Unprecedented wildfire activity throughout California at just the beginning of this wildfire season, in our view, could be indicative of a worsening environment that is more susceptible to frequent and more severe wildfires. This could increase the probability that a California investor-owned electric utility causes a catastrophic wildfire at a more regular occurrence than our prior base-case assumptions. These deteriorating conditions may also adversely affect the utility's ability to effectively manage regulatory risk.
- As such, we are revising our outlook on PG&E Corp. and subsidiary Pacific Gas & Electric Co. (Pac Gas) to negative from stable.
- We are affirming our ratings on PG&E and Pac Gas including our 'BB-' issuer credit ratings, the 'BB-' rating on PG&E's senior notes, and the 'BBB-' rating on Pac Gas' senior secured debt.
- The negative outlook reflects the accelerated rate of wildfire activity as demonstrated by the record-setting pace of California's wildfires, which is still in the early stages of the 2020 wildfire season. In our view, the lack of sufficient rainfall, the dry environment, and the ease that relatively routine wildfires can develop into catastrophic wildfires increases the likelihood that a California investor-owned electric utility could potentially be the cause of a catastrophic wildfire.

Rating Action Rationale

The negative outlook reflects the evidence of accelerated catastrophic wildfires. Although AB 1054 establishes a wildfire fund that reduces much of the credit risk exposure associated with California's interpretation of the legal doctrine of inverse condemnation--whereby a California utility can be financially responsible for a wildfire if its facilities were a contributing cause of a wildfire, regardless of its negligence—the fund does not automatically replenish. Every catastrophic wildfire caused by a California investor-owned electric utility reduces the relative

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size of the fund, weakening credit quality. The evidence of wildfire acceleration in just the beginning of this wildfire season could, in our view, increase the probability of a California investor-owned electric utility causing a catastrophic wildfire, depleting the wildfire fund sooner than expected.

The pace of wildfires at just the beginning of this season has been unprecedented and could eventually strain available resources. To date, California has experienced more than 7,700 wildfires that have burned more than 3 million acres, damaged more than 5,300 structures and has led to more than 20 fatalities. This contrasts to 2019 when California experienced for the entire wildfire season about 7,900 wildfires, less than 260,000 acres burned, less than 750 structures destroyed, and 3 fatalities. We believe the acceleration of adverse wildfire conditions is partially affected by the 2020 below-average rainfall, which we believe could potentially signal a longer and more devastating wildfire season. While California's state agencies including the California Department of Forestry and Fire Protection have performed remarkably given the extraordinary difficult conditions, these conditions have contributed to a very difficult regulatory and political environment.

Managing regulatory risk could become more challenging. Many of California's electric customers have already faced rolling blackouts in 2020 due to the extraordinary hot weather and we expect the pace of public safety power shut-offs to accelerate, reflecting California's utilities proactively reducing the risk of causing a catastrophic wildfire. Should the frequency of these blackouts and shut-offs increase, frustrated customers and politicians could negatively affect California's investor-owned electric utilities ability to consistently manage regulatory risk.

Financial measures remain in line with expectations. We assess the company's financial risk profile using our medial volatility table, consistent with its regulated utility business. We expect 2020 funds from operations (FFO) to debt at about 15%, consistent with the lower end of the range for its financial risk profile category. Given the company's robust capital spending program of about $8 billion annually, we expect that PG&E will continue to have negative discretionary cash flow.

Environmental, social, and governance (ESG) credit factors for this credit rating change.

- Natural conditions

Outlook

The negative outlooks on PG&E and Pac Gas reflect the increased probability for a downgrade incorporating the accelerated rate of adverse wildfire activity as demonstrated by the record-setting pace of California's wildfires, which is still in the early stages of the wildfire season. In our view, the lack of sufficient rainfall, the dry environment, and the apparent ease that relatively routine wildfires can develop into a catastrophic wildfire, increases the likelihood that a California investor-owned electric utility could potentially be the cause of a catastrophic wildfire.

Downside scenario

We could downgrade PG&E and Pac Gas over the next 6 to 12 months if risks increase, such as any of California's investor-owned electric utilities are found to be the cause of a catastrophic wildfire, thereby increasing the probability that the wildfire fund could deplete sooner than expected. We

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could also lower ratings if PG&E's consolidated FFO to debt weakens to below 13%.

Upside scenario

We could affirm the ratings and revise the outlook to stable over the next 6 to 12 months if PG&E's consolidated FFO to debt is consistently above 13%, California's investor-owned electric utilities are not found to be the cause of a catastrophic wildfire, and Pac Gas consistently demonstrates effective management of regulatory risk.

Company Description

PG&E Corp. is a San Francisco-based utility holding company. Its wholly owned utility subsidiary is Pac Gas, which operates in northern and central California. Pac Gas generates revenues through the sale and delivery of electricity and natural gas to 5.5 million electric and 4.5 million gas customers and has about 7,700 MW of generation capacity. The utility is regulated by the CPUC, the Federal Energy Regulatory Commission, and the Nuclear Regulatory Commission.

Liquidity

We assess PGE's liquidity as adequate to cover its needs over the next 12 months. We expect the company's liquidity sources will exceed its uses by 1.1x, and that the company will meet our other criteria for such a designation. PG&E benefits from the preponderance of regulated utility operations that provide for stable cash flow generation. Moreover, we expect liquidity should benefit from the company's well-established and solid relationships with banks, and its likely ability to absorb high-impact, low-probability events without the need for refinancing, as evidenced by the company's ability to access the wildfire fund.

Principal Liquidity Sources

- Available cash of about $1 billion;
- Credit facility availability of $3.7 billion; and
- Cash FFO of about $2.5 billion.

Principal Liquidity Uses

- Debt maturities of about $1.5 billion over the next 12 months; and
- Maintenance capital spending of about $4 billion over the next 12 months.

Covenants

PG&E's revolver contains a debt to capital limit of 70% and Pac Gas' revolver has a debt to capital limit of 65%. We expect the companies to consistently be in compliance with these covenants and have at least 15% financial covenant headroom.

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Issue Ratings - Subordination Risk Analysis

Capital structure

PG&E has about $38 billion of debt. About $5 billion consists of senior notes at PG&E and approximately $33 billion of senior secured debt at Pac Gas that are backed by first-mortgage bonds (FMB). The secured notes will all be collateralized, backed by FMBs, and will be rated in-line with Pac Gas' senior secured issue rating.

Issue Ratings - Recovery Analysis

Key analytical factors

- Our recovery rating on Pac Gas's first-mortgage bonds and its secured revolving credit facility reflects the substantial value of the company's regulated utility assets that is sufficiently larger than the company's secured debt, limited priority claims, and other liabilities at the utility at this time. For our recovery analysis we treat the accounts-receivable securitization as a priority claim due to its senior claim to the value of the company's account receivables and the structural protections of this financing structure.
- Pac Gas' secured debt has a '1+' recovery rating, indicating our highest expectation for a full recovery, and resulting in an issue rating three notches above the issuer credit rating. The recovery rating reflects collateral coverage in excess of 150%, consistent with our criteria for recovery ratings on debt issued by regulated utilities that is secured by the key utility assets.
- We view the secured debt at PG&E as effectively unsecured because it is unguaranteed by Pac Gas and is essentially the junior-most debt liability in PG&E's consolidated capital structure, behind unsecured liabilities and preferred equity interests at Pac Gas. As such, we cap the recovery rating on this debt at '3', consistent with our approach to rating unsecured debt issued by companies with an issuer credit rating of 'BB-' or higher.
- The '3' recovery rating cap recognizes that 'BB' category entities are more likely to significantly increase debt before default and that recovery prospects for unsecured debt are most likely to be impaired by additional debt. Further, claims of PG&E's debt would be structurally junior to potential non-debt liabilities at Pac Gas, including future potential wildfire liabilities. Notwithstanding the cap, based on PG&E's current capital structure, the recovery rate on PG&E's debt could be higher than the 50%-70% indicated by our '3' recovery rating.
- A default scenario could stem from sudden liquidity pressure from an unpredictable weather, cost, or market event outside of the company's control, consistent with past utility defaults. Further it could reflect significant future litigation exposure at Pac Gas, consistent with PG&E's prior default.
- We expect Pac Gas to continue to operate and reorganize after default given the essential nature of its services. We also assume the value of the utility's assets will be preserved and we use the net value of its regulated fixed assets as a proxy for the company's enterprise value. The company's regulated asset value is currently roughly $66 billion.

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Simulated default assumptions

- Simulated year of default: 2024
- Gross enterprise value--discrete asset valuation (DAV) approach: $66 billion
- Valuation split—PG&E/Pac Gas: 0%/100%

Simplified waterfall

- Net recovery value after administrative costs (5%): $62 billion
- Pac Gas value: $62 billion
- Priority claims at Pac Gas (A/R securitization): $1 billion
- Secured debt claims at Pac Gas (FMBs and bank debt): $37 billion
- Recovery estimate: 100%
- Residual value available to Pac Gas equity: $24 billion
- Pac Gas Preferred Stock claims: $250 million
- Residual value available to Parent creditors: $24 billion
- Debt claims at Parent (effectively unsecured): $5.3 billion
- --Recovery range: Capped at 50%-70%; rounded estimate: 65%

Notes: Debt amounts include six months of accrued interest that we assume will be owed at default. We assume the cash flow revolvers at Pac Gas ($3.5 billion) and PG&E ($500 million) at 85% utilized at default and that the $1 billion accounts receivable securitization is fully utilized. We assume any debt maturing before default is refinanced on similar terms before maturity.

Ratings Score Snapshot

Issuer Credit Rating: BB-/Negative/--

Business risk: Satisfactory

- Country risk: Very low
- Industry risk: Very low
- Competitive position: Fair

Financial risk: Significant

- Cash flow/Leverage: Significant

Anchor: bb+

Modifiers

- Diversification/Portfolio effect: Neutral (no impact)
- Capital structure: Neutral (no impact)

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- Financial policy: Neutral (no impact)
- Liquidity: Adequate (no impact)
- Management and governance: Weak (-1 notch)
- Comparable rating analysis: Negative (-1 notch)

Stand-alone credit profile: bb-

- Group credit profile: bb-

Related Criteria

- General Criteria: Group Rating Methodology, July 1, 2019
- General Criteria: Hybrid Capital: Methodology And Assumptions, July 1, 2019
- Criteria | Corporates | General: Corporate Methodology: Ratios And Adjustments, April 1, 2019
- General Criteria: Methodology For Linking Long-Term And Short-Term Ratings, April 7, 2017
- Criteria | Corporates | General: Recovery Rating Criteria For Speculative-Grade Corporate Issuers, Dec. 7, 2016
- Criteria | Corporates | General: Methodology And Assumptions: Liquidity Descriptors For Global Corporate Issuers, Dec. 16, 2014
- Criteria | Corporates | Utilities: Key Credit Factors For The Regulated Utilities Industry, Nov. 19, 2013
- Criteria | Corporates | General: Corporate Methodology, Nov. 19, 2013
- General Criteria: Country Risk Assessment Methodology And Assumptions, Nov. 19, 2013
- General Criteria: Methodology: Industry Risk, Nov. 19, 2013
- Criteria | Corporates | Utilities: Collateral Coverage And Issue Notching Rules For '1+' And '1' Recovery Ratings On Senior Bonds Secured By Utility Real Property, Feb. 14, 2013
- General Criteria: Methodology: Management And Governance Credit Factors For Corporate Entities, Nov. 13, 2012
- General Criteria: Principles Of Credit Ratings, Feb. 16, 2011

Ratings List

Ratings Affirmed/Outlook Action

	To	From
PG&E Corp.		
Pacific Gas & Electric Co.		
Issuer Credit Rating	BB-/Negative/NR	BB-/Stable/NR

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Ratings Affirmed/Outlook Action (cont.)

Ratings Affirmed; Recovery Rating Unchanged

PG&E Corp.	
Senior Secured	BB-
Recovery Rating	3(65%)
Pacific Gas & Electric Co.	
Senior Secured	BBB-
Recovery Rating	1+

Certain terms used in this report, particularly certain adjectives used to express our view on rating relevant factors, have specific meanings ascribed to them in our criteria, and should therefore be read in conjunction with such criteria. Please see Ratings Criteria at www.standardandpoors.com for further information. Complete ratings information is available to subscribers of RatingsDirect at www.capitaliq.com. All ratings affected by this rating action can be found on S&P Global Ratings' public website at www.standardandpoors.com. Use the Ratings search box located in the left column.

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Attachment D: Moody's, 2020-08-19 FAQ on what's next after emergence from bankruptcy

MOODY'S
INVESTORS SERVICE

ISSUER IN-DEPTH
19 August 2020

RATINGS

PG&E Corporation

Corporate family rating	Ba2
Outlook	Stable

Pacific Gas & Electric Company

First mortgage bonds	Baa3
Preferred stock	B1
Outlook	Stable

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PG&E Corporation

FAQ on what's next after emergence from bankruptcy

» **Ability to mitigate wildfire risk to be key determinant of credit quality.** PG&E Corporation's (Ba2 stable) ability to improve its credit quality will depend heavily on whether it can mitigate the risk of wildfires in its service territory. This will require substantial financing through the issuance of new debt. If the company is not able to recover future costs and investments related to wildfire mitigation in a timely manner, its financial performance will deteriorate. While climate models are subject to change as mitigating efforts alter projected trajectories, they currently suggest that California faces rising wildfire risk over the next three decades, regardless of greenhouse gas mitigation efforts.

» **Credit quality would deteriorate if equipment failures were to trigger another string of catastrophic wildfires in its service territory.** Although the wildfire fund established by California Assembly Bill 1054 (AB 1054) was set up to mitigate the financial impact a major wildfire can have on a utility, catastrophic wildfires over a multi-year period could potentially exhaust the fund. Moreover, the liability cap in place would lapse upon the fund's depletion, which would make AB 1054 less credit supportive for California utilities. However, a single catastrophic fire this year would unlikely have an immediate material financial impact on PG&E, given the current full availability of the wildfire fund and the time it takes to determine both the cause of a fire and the amount of damages that the utility must pay.

» **PG&E will have ample opportunity to strengthen key credit metrics if it does not incur wildfire-related liabilities.** Rate base growth through the significant infrastructure investments required will improve cash flow generation. At the same time, we expect PG&E to be able to use any residual cash flow remaining after capital investments to pay down holding company debt, given that the company is prohibited from distributing dividends to shareholders until at least 2023. PG&E's $2.75 billion term loan maturing in 2025 provides increased financial flexibility to reduce leverage by paying off this debt either partially or in full ahead of maturity.

» **Proposed securitization financing to be credit neutral**. We typically view a utility's use of securitization bonds as a credit positive financing tool. But PG&E is proposing to establish a customer credit trust that will be used to provide customers with bill credits to offset the securitization bond principal and interest charges annually. PG&E expects to fund the customer credit trust largely through cash flow generated from tax benefits created by paying past wildfire-related claims.

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Ability to mitigate wildfire risk to be key determinant of credit quality

On 1 July 2020, PG&E Corporation and its principal utility subsidiary, Pacific Gas & Electric Company (PG&E, Baa3 first mortgage bonds stable) exited from bankruptcy. Upon plan confirmation and the fulfillment of AB 1054 requirements, PG&E will be able to participate in California's wildfire fund and benefit from other credit supportive provisions incorporated in the law.

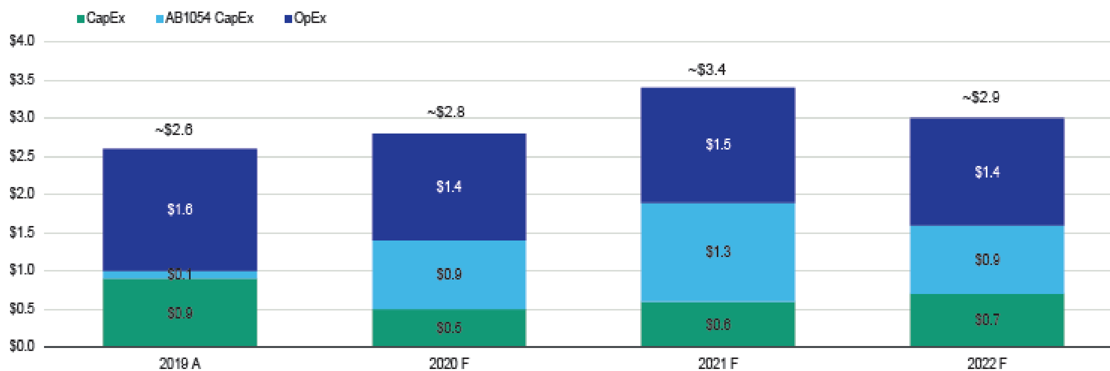
PG&E's ability to improve its credit quality will depend heavily on whether it can mitigate the risk of wildfires in its service territory. The company plans to make significant investments in its infrastructure in the years ahead, particularly around wildfire mitigation. This will require substantial financing through the issuance of new debt. If PG&E is not able to recover future costs and investments related to wildfire mitigation in a timely manner, the company's financial performance will deteriorate.

Can PG&E reduce the risk of wildfires in its service territory?

Only time will tell. PG&E continues to invest significantly on wildfire mitigation, including system hardening, enhanced inspections and vegetation management, and has a plan to regionalize its operations to increase its focus on local communities. The company is endeavoring to develop an effective wildfire mitigation program through the establishment of a fire hardened electric system that is rigorously inspected and maintained. With these efforts, PG&E is striving to emulate San Diego Gas & Electric Company (SDG&E, Baa1 positive), which has had a relatively long and successful track record of wildfire mitigation, albeit in a considerably smaller service territory with different topography.

PG&E continues to invest in monitoring equipment to improve situational awareness of its network to anticipate, prepare for and react to extreme weather conditions. As part of the company's approximately $6.2 billion in wildfire mitigation investments being made during 2020-2021, PG&E plans to install an additional 400 weather stations and 200 high-definition cameras by the end of the year and a total of 1,300 weather stations and 600 HD cameras by the end of 2021. SDG&E has used these and other technologies to substantially reduce wildfire risk in its service territory since it last contended with major wildfires in 2007.

Exhibit 1
PG&E's wildfire mitigation plan includes significant annual investments
($ in billions)



Source: PG&E Corporation

In June, PG&E filed a regional restructuring plan application with the California Public Utilities Commission (CPUC) to provide greater accountability at the local level. This regionalization model is aimed at improving safety and responsiveness to customers and local communities, such as by replacing faulty equipment more quickly and reducing outage response times, particularly when utilizing public safety power shutoffs.

Over the long term, climate change is likely to increase the risk of wildfires in California. Cal-Adapt, a state-funded climate data tool maintained by the University of California at Berkeley, models a 10.6% increase in the number of square miles at risk in PG&E's service

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territory over the next 30 years, compared to the previous 13 years. Exhibit 2 illustrates the outcomes of Cal-Adapt's model, which uses representative concentration pathways (RCPs) as adopted by the United Nations' Intergovernmental Panel on Climate Change. Cal-Adapt's model does not include the impact of high winds in certain parts of the state.

While climate models are subject to change as mitigating efforts alter projected trajectories, they continue to point to a statewide increase in wildfire risk over the next three decades. Physical climate risks, like rising temperatures and declining or variable precipitation, which can create hotter and drier conditions, are largely locked in globally until 2050 (see "ESG – Global: Climate scenarios vital to assess credit impact of carbon transition, physical risks"). Hence, We expect wildfire risks to intensify regardless of greenhouse gas mitigation efforts. Beyond 2050, carbon mitigation might be able to reduce the risk of climate hazards that contribute to wildfires.

Exhibit 2

Cal-Adapt projects an increase in square miles at risk of wildfires over the next 30 years

Cal-Adapt data using RCP 8.5 as base case	California (State of)	PG&E (utlity)
Issuer rating	Aa2	NA
Senior Secured	NA	Baa3
Outlook	Stable	Stable
Service area size in square miles	163,695	70,000
Annual mean square miles at risk per Cal-Adapt		
1950-2005	664	379
2006-19	767	416
2020-50	817	461
2050-99 (RCP 8.5)**	1,094	651
2050-99 (RCP 4.5)**	920	535
Risk over last 13 years compared to prior 55 years	15.6%	9.9%
Future risk in next 30 years compared to last 13 years	6.5%	10.6%
Long-term risk 2050-99 compared to 2006-19 with no GHG mitigation efforts	42.7%	56.4%
Long-term risk 2050-99 compared to 2006-19 with GHG mitigation efforts; GHG emissions peak in 2040 before declining thereafter	20.0%	28.5%
% of service territory at risk per Cal-Adapt		
1950-2005	0.41%	0.54%
2006-19	0.47%	0.59%
2020-50	0.50%	0.66%
2050-99 (RCP 8.5)**	0.67%	0.93%
2050-99 (RCP 4.5)**	0.56%	0.76%

We assume the service territory at risk equals the variable square miles projected to be burned over the constant total service area. Lack of clarity in Cal-Adapt public site.
** We assume RCP 8.5 (high emissions scenario) as Moody's global scenario up to 2050 due to "locked in" effects of climate change. After 2050, one can differentiate between RCP 8.5 (high emissions scenario) vs RCP 4.5 (a scenario with GHG emissions mitigation).
Note: Exhibit includes partial data from exhibit initially published in "Public Power Electric Utilities – California: Rising wildfire risks manageable for CA publicly owned electric utilities, except in extreme scenarios."

Source: Cal-Adapt

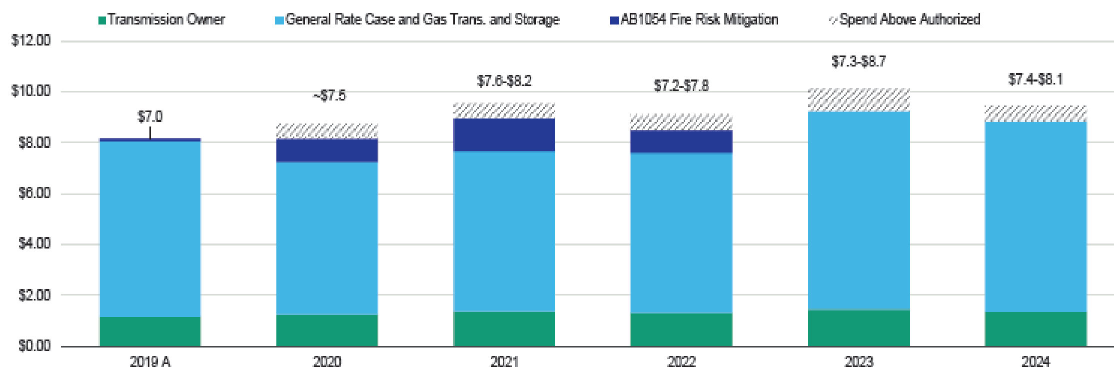
What factors could erode PG&E's credit quality?

PG&E's credit quality would deteriorate if equipment problems were to trigger another string of catastrophic wildfires in its service territory, akin to what the utility experienced from 2015 through 2018. During 2017 and 2018, faulty PG&E equipment was linked to at least 17 major wildfires, causing more than $30 billion in damages. Although the wildfire fund established by AB 1054 was set up to mitigate the financial impact a major wildfire can have on a utility, catastrophic wildfires over a multiyear period could potentially exhaust the fund. Moreover, the liability cap in place would lapse upon the fund's depletion, which would make AB 1054 less credit supportive for California utilities (see "Regulated electric and gas utilities – US: California's wildfire fund is sufficiently capitalized to pay out claims").

AB 1054 remains untested. If there is an unexpected failure by state regulators to effectively implement the law's credit supportive mechanisms, such as a revised prudency standard, the credit quality of PG&E and California's other investor-owned utilities would deteriorate. In the event of a wildfire, the utility is presumed to have acted prudently unless intervenors create a serious doubt as to the reasonableness of the utility's conduct. Furthermore, the CPUC can also consider factors that are beyond the utility's control, such as weather conditions like humidity, temperature and wind. The revised prudency standard appears to be more consistent with that of the Federal Energy Regulatory Commission (FERC), which we view as more constructive.

Poor operational performance or less than timely recovery of costs and investments would also impair PG&E's credit quality. In addition to its wildfire mitigation investments, the utility will undertake substantial capital investment projects to construct, replace, and improve its electricity and natural gas facilities. The investments are being financed with a mix of about half equity and half debt. Over the 2020-2022 period included in its recent general rate case settlement, PG&E plans to invest an average of $4.6 billion a year in electric and natural gas distribution, as well as generation infrastructure. The settlement agreement, which is awaiting CPUC final approval, includes revenue requirement increases of $454 million in 2021 and $486 million in 2022 for PG&E's gas and electric distribution service. PG&E's electric transmission and natural gas transmission and storage investments are recovered through separate FERC regulatory proceedings. Besides the approved wildfire mitigation investments that the company will not earn an equity return on pursuant to AB 1054, recovery of additional capital investments above authorized levels will be addressed in future rate case proceedings. A delay or inability to earn a return on and of investments would weaken the company's financial profile during this period.

Exhibit 3
PG&E's increasing capital investment plans will require substantial new debt issuance
($ in billions)



Source: PG&E Corporation

Would a catastrophic wildfire in PG&E's service territory this year hurt its credit quality?

Yes, but a new wildfire would likely increase social and reputational risk more than financial risk. Because of PG&E's history of safety problems, the company already faces greater social risk than most of its regulated electric and gas utility peers. PG&E needs to regain the trust of California regulators, state policymakers and, most importantly, its customers. The company's involvement in another catastrophic wildfire would also signal that its wildfire mitigation efforts continue to severely lag those of its peers, which would be credit negative. However, a catastrophic fire this year would be less likely to have an immediate material financial impact on the company.

First, it can take many months to determine how a wildfire was ignited. For example, the California Department of Forestry and Fire Protection (Cal Fire), the agency that investigates fires in the state and determines the cause of ignition, announced on 16 July that it had determined – about eight months after the fact – that faulty electrical transmission lines owned and operated by PG&E had sparked the 2019 Kincade fire in Sonoma County (see "CAL FIRE's determination that PG&E equipment caused the 2019 Kincade fire has no material financial impact"). In the case of the 2017 Tubbs fire, one of the largest wildfires that year, it took Cal Fire about 16 months to conclude its investigation.

Second, it can take even longer for most claims to be filed in the wake of a major wildfire to calculate a reasonable estimate of the impact on an investor-owned utility's financial profile. Finally, and most important, AB 1054's credit supportive provisions, including its wildfire insurance fund, are intended to help mitigate the financial burden a wildfire event could have on credit quality. The wildfire insurance fund provides a utility with immediate access to a substantial liquidity resource to cover potential damages caused by a future catastrophic wildfire ignited by its equipment, when the damages exceed the greater of $1 billion or the utility's insurance coverage.

Finally, AB 1054 includes other important provisions including a liability cap calculated as 20% of the utility's equity portion of its transmission and distribution (T&D) rate base over any three-year period. The state's utilities should also benefit from a more favorable prudency standard and a more expedient subrogation claims settlement process. If the wildfire insurance fund's claims paying capability is ultimately exhausted, the disallowance cap will no longer be available, but the more favorable prudency standard will remain. We note that, although AB 1054 includes these credit supportive mechanisms, it has yet to be tested in its application in response to a wildfire event (see the "Regulated electric utilities – US: FAQ on the credit implications of California's new wildfire law").

What could improve PG&E's credit?

PG&E's credit quality will improve with each passing year as long as operational improvements and mitigation investments prevent the outbreak of catastrophic wildfires in its service territory. While there are many variables involved in the ignition and spread of wildfires, PG&E will likely have to get through at least three years without a catastrophic wild fire in order to adequately demonstrate that it has substantially reduced its exposure to wildfire risk. Improved pre-incident planning and coordination with local authorities to help contain the spread of fires before they exact a significant toll on customers and property would go a long way toward restoring confidence in the utility's mitigation efforts.

The company also has to address near-term governance risks. PG&E's senior management and financial policies are in a period of transition following the company's 1 July emergence from bankruptcy protection for the second time in two decades. Eleven of the 14 members on PG&E's board of directors were appointed in June. The company asserts that the new board members bring expertise in key areas, such as utility operations and management, safety and environment, risk management, customer engagement and corporate governance.

The revamped board has been tasked with the search for a new chief executive for both the parent company and the operating subsidiary following the 30 June retirement of PG&E Corporation CEO and president William D. "Bill" Johnson and the 30 July departure of PG&E CEO Andy Vesey (see "PG&E Corporation: Utility subsidiary's CEO departure adds to heightened governance risk"). While the opportunity to run such a large investor-owned utility would normally draw strong interest from a deep pool of experienced candidates, PG&E's checkered recent history and its myriad operational and regulatory issues may pose challenges for the search.

Can PG&E improve its financial profile over the next 12 to 18 months?

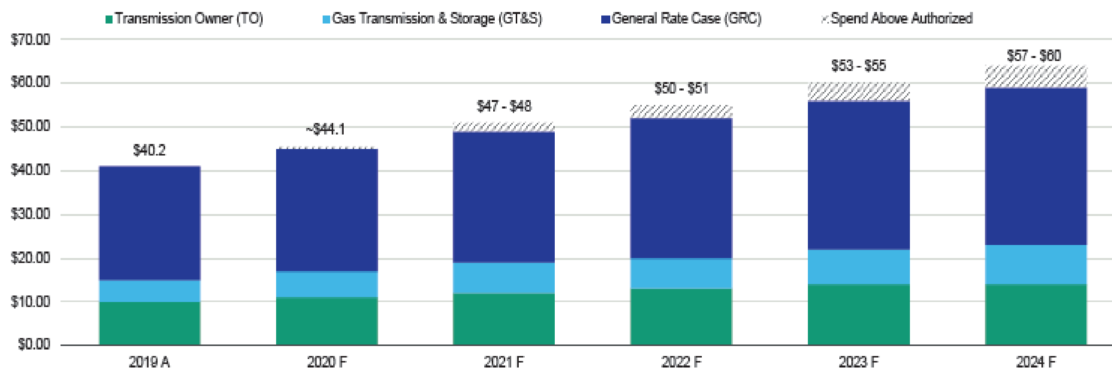
We think the company will have substantial opportunity to strengthen its key credit metrics if it does not incur material liabilities arising from a catastrophic wildfire. Rate base growth through significant infrastructure investments will improve cash flow generation. At the same time, we expect PG&E to be able to use any residual cash flow remaining after capital investments to pay down holding company debt, given that the company is prohibited from distributing dividends to shareholders until at least 2023. Strengthening the company's financial profile is an important credit consideration, but it is less of a priority than mitigating wildfire risk and improving stakeholder relationships.

As part of the plan of reorganization, the bankruptcy court approved a motion filed by PG&E to restrict shareholder dividends. PG&E is precluded from paying common dividends to equity holders until the company has recognized $6.2 billion in non-GAAP core earnings, or GAAP earnings adjusted for certain non-core items identified in a separate disclosure statement. As such, we do not expect the dividend restriction to be lifted until sometime in 2023. While the ability to pay shareholder dividends is a common practice of investment-grade utility holding companies, the dividend restriction will enable PG&E to retain cash and use residual funds available after capital investments to pay down debt, which is credit positive.

As part of the company's exit financing, PG&E Corporation entered into a $2.75 billion term loan maturing in 2025 as well as issuing $2 billion in notes, half of which mature in 2028 and 2030. The term loan offers the company increased financial flexibility to reduce leverage by paying off this debt either partially or in full ahead of maturity. Upon exit, we estimate parent debt to represent about

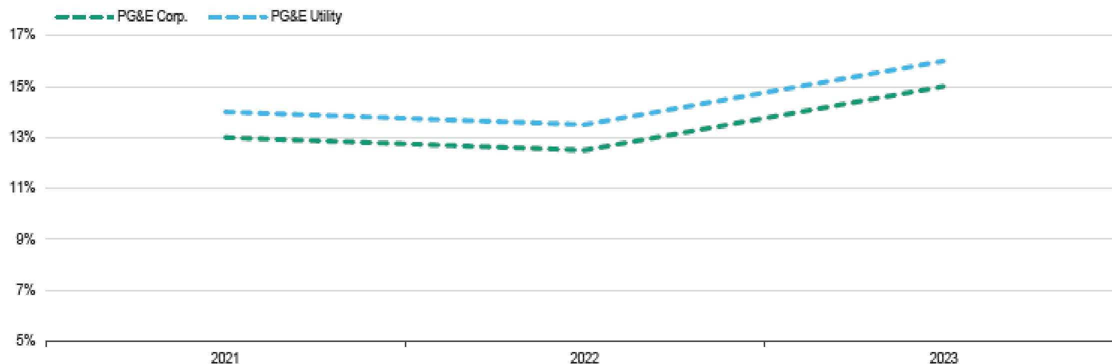
12% of consolidated debt. However, we expect parent debt to gradually decline over the next few years as the company has disclosed that it expects to pay down about $2.5 billion of holding company debt by 2023. Through increased cash flow generation and debt reduction, particularly at the parent level, we expect the companies' financial profiles to gradually strengthen, such that we project PG&E Corporation's ratio of cash flow from operations pre-working capital changes (CFO pre-W/C) to debt to increase from about 12% in 2021 to 15% in 2023. Similarly, we project the operating company's ratio of (CFO pre-W/C) to debt to increase from about 14% to 16% over the same period.

Exhibit 4
PG&E's weighted average rate base forecast should drive increased cash flow generation
($ in billions)



Source: PG&E Corporation

Exhibit 5
Moody's projected ratio of CFO pre-WC/debt for PG&E Corp. and PG&E during the 2021-2023 period



Source: Moody's Investors Service

What are the credit implications of PG&E's proposed $7.5 billion securitization financing?

PG&E is seeking CPUC approval to issue $7.5 billion in rate-neutral securitization bonds to be issued in the first half of 2021. If the CPUC approves the plan, the proceeds from the securitization bonds would be used to pay down $6 billion of temporary debt and the CPUC would not consider it as a permanent debt component within the utility's regulated capital structure.

We typically view securitization bonds as a credit positive financing tool (see "Regulated utilities – US: Utility cost recovery through securitization is credit positive"). However, unlike traditional utility securitization structures in which the customer is the ultimate payor of the principal and interest on the bonds, PG&E is proposing this securitization structure to be rate-neutral to customers. Although specific details on the structure have yet to be finalized or approved, PG&E is proposing to establish a customer credit trust that will

be used to provide customers with bill credits to offset the securitization bond principal and interest charges annually. PG&E expects to fund the customer credit trust largely through cash flows generated from tax benefits created by paying past wildfire-related claims. The credit offset back to customers will reduce PG&E's revenues and cash flows while the securitization bonds would be considered as on-credit debt and reflected in our key credit metrics. Credit metrics will, however, benefit from the amortizing nature of the bonds.

Moody's related publications

Credit Opinion

» PG&E Corporation: Update to credit profile upon exit from bankruptcy, 16 June 2020

Issuer Comment

» PGE& Corporation: Utility subsidiary's CEO departure adds to heightened governance risk, 30 July 2020

» PG&E Corporation: CAL FIRE's determination that PG&E equipment caused the 2019 Kincade fire has no material financial impact, 17 July 2020

Sector Comments

» Regulated electric utilities – North America: Bill proposing fines for power shutoffs is credit negative for California utilities, 31 January 2020

» Regulated electric and gas utilities – US: California's wildfire fund is sufficiently capitalized to pay out claims, 20 November 2019

» Regulated electric utilities – California: Customer bill credits after power shutoffs signal weakening political support, 31 October 2019

» ESG - California: Public safety power shutoffs highlight links between environmental and social risks, 28 October 2019

» Regulated electric utilities – US: Proposed California wildfire risk legislation is credit positive but questions remain, 10 July 2019

» Electric utilities – US: Limiting utility liabilities looms large after release of SB 901 Commission draft report, 4 June 2019

» Regulated electric utilities – US: California wildfire strike force report is credit positive, but details are still pending, 15 April 2019

Sector In-Depth

» Public Power Electric Utilities – California: Rising wildfire risks manageable for CA publicly owned electric utilities, except in extreme scenarios, 27 May 2020

» Regulated electric utilities – US: FAQ on the credit implications of California's new wildfire law, 6 August 2019

» Electric and Gas Utilities - US: California utilities struggle with inverse condemnation exposure, 15 April 2019

» Electric Utilities - US: Potential remedies to reduce California fire risk face competing interests, 3 April 2019

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REPORT NUMBER 1239753

MOODY'S
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Attachment E: Wall Street Journal, PG&E Equipment Might Have Ignited Northern California Wildfire, October 9, 2020

U.S.

PG&E Equipment Might Have Ignited Northern California Wildfire

Utility said fire investigators have taken possession of power line equipment as part of probe into Zogg Fire's origins

PG&E workers inspected a site in St. Helen, Calif., on Sept. 30. More than 3.8 million acres in the state have been scorched by a total of more than 8,100 fires this year.

PHOTO: JUSTIN SULLIVAN/GETTY IMAGES

By Katherine Blunt

Updated Oct. 9, 2020 8:23 pm ET

Listen to this article

3 minutes

PG&E Corp. told California regulators that its power equipment might have contributed to igniting a recent wildfire that has killed four people.

The utility disclosed in securities filings that it notified the California Public Utilities Commission on Friday it had recorded alarms on certain equipment supporting a power line that served an area east of Redding, Calif., where the Zogg Fire is believed to have originated in Shasta County, near Oregon.

The fire has burned more than 56,000 acres and destroyed 204 structures since it started late last month, according to the California Department of Forestry and Fire Protection. The blaze, which forced evacuations in the area, was almost fully contained as of Friday, according to Cal Fire.

PG&E said state fire investigators have taken possession of some of its equipment as part of their probe into the cause of the fire. The company said the information is preliminary and that it has no information about the cause of the fire. It said it doesn't have access to Cal Fire evidence and that it is cooperating with the investigation.

"We recognize the tragic losses sustained as a result of this year's fire season and are thankful as always for the efforts of the first responders who have worked tirelessly to contain the fires and protect the lives and property of California residents," the company said.

If PG&E's equipment is found responsible for the fire, it could face substantial liability-related costs just months after emerging from bankruptcy. The company sought chapter 11 protection in January 2019 as it grappled with billions of dollars in wildfire-related liability costs. The company's equipment sparked a series of destructive wildfires in 2017 and 2018 that collectively killed more than 100 people and burned more than 15,000 homes in Northern California.

PG&E has been working to make its electric grid safer and trim trees away from power lines to reduce the risk of its equipment sparking more wildfires. The company has resorted to pre-emptively shutting off power when wind speeds pick up, which raises fire risks.

California has suffered an unprecedented spate of wildfires this year. More than 3.8 million acres have been scorched by a total of more than 8,100 fires, according to Cal Fire. Since mid-August, at least 29 people have died.

Severe weather conditions have given rise to the blazes in California and across the western U.S., with record-setting heat, gusty winds and dry vegetation fueling fast-spreading blazes. Scientists say the most significant causes are poor forest management and climate change, which causes higher temperatures and longer droughts.

Write to Katherine Blunt at Katherine.Blunt@wsj.com

Appeared in the October 10, 2020, print edition as 'PG&E Says Its Gear May Be Tied to Wildfire.'

Attachment F: PG&E Response to TURN data request No. 1, Question 5(e)

QUESTION 05

On p. 6-18, PG&E states:

> "Across the full range of 2,000 simulations generated by the model, the Customer Credit Trust had a positive terminal balance in roughly 75 percent of the outcomes."

a. Please provide a live version of the model supporting Confidential Testimony Table 6-7. Range of Surplus Outcomes and Year of First Shortfall.

b. Please provide all supporting documentation and data for the model's assumptions, including those in Confidential Testimony Table 6-4. Callan Long Term Capital Market Projections – Return and Standard Deviation and Confidential Testimony Table 6-5. Callan Long Term Capital Market Projections – Correlation.

c. Please provide the results of all 2000 simulations in excel format.

d. Did all of the original simulations discussed above include the same assumptions regarding the amount and timing of the initial and additional shareholder contributions? If not how did the assumptions vary and why?

e. If the answer to part a is yes, did any of the simulations examined include "Additional Shareholder Contributions different from the $7.59 billion "cap?" If so please explain the different amounts and the reason for these differences in Additional Shareholder Contributions.

f. Please provide all documents pertaining to the modeling that were exchanged between Callan and PG&E.

ANSWER 05

On August 7, 2020, PG&E served updated prepared testimony in this proceeding. The language quoted in this request has been updated as follows in Chapter 6, Customer Credit Mechanism and Investment Returns (D. Thomason; G. Allen), at page 6-21: "Across the full range of 2,000 simulations generated by the model, the Customer Credit Trust had a positive terminal balance in roughly 84 percent of the outcomes." PG&E's response incorporates this updated language.

PG&E objects to this request as vague, ambiguous, and unduly burdensome. The model supporting Table 6-7 requires the use of proprietary software over which PG&E does not possess a license and cannot grant a license to TURN. PG&E further objects to this request as overbroad and as seeking information protected by the attorney-client privilege and/or attorney work product doctrine. PG&E's response excludes any privileged information or attorney work product. Subject to its objections, PG&E responds as follows:

a. In accordance with Rules 10.4(d) and (e), PG&E will meet and confer with TURN to arrange access to, or sufficient use of, the model that supports Mr. Allen's testimony.

b. *See* 2020Securitization_DR_Misc_Chapter 6_Capital Markets Assumptions 2020-FullDeck_master_021220.pdf; 2020Securitization_DR_Misc_Chapter 6_Callan-Capital-

Market-Assumptions-2020-2029.pdf; 2020Securitization_DR_Misc_Chapters 3_6_7_UPDATED08-07-2020_Securitization Application Update Model_Final.xlsx.

c. *See* 2020Securitization_DR_Misc_Chapter 6_UPDATED08-07-2020_All Trials.xlsx.

d. Yes.

e. Assuming this question is meant to refer to the answer to part d. being yes, none of the simulations referenced on p. 6-21 of Mr. Allen's testimony included Additional Shareholder Contributions different from the $7.59 billion cap.

f. Mr. Allen requested information from PG&E regarding the tax treatment of the nuclear decommissioning trusts. *See* 2020Securitization_DR_TURN_01-Q05_2019 Estimated Tax PymtsCONF.xls.

Q&A 6 are omitted