PG&E HEARING EXHIBIT PGE-73
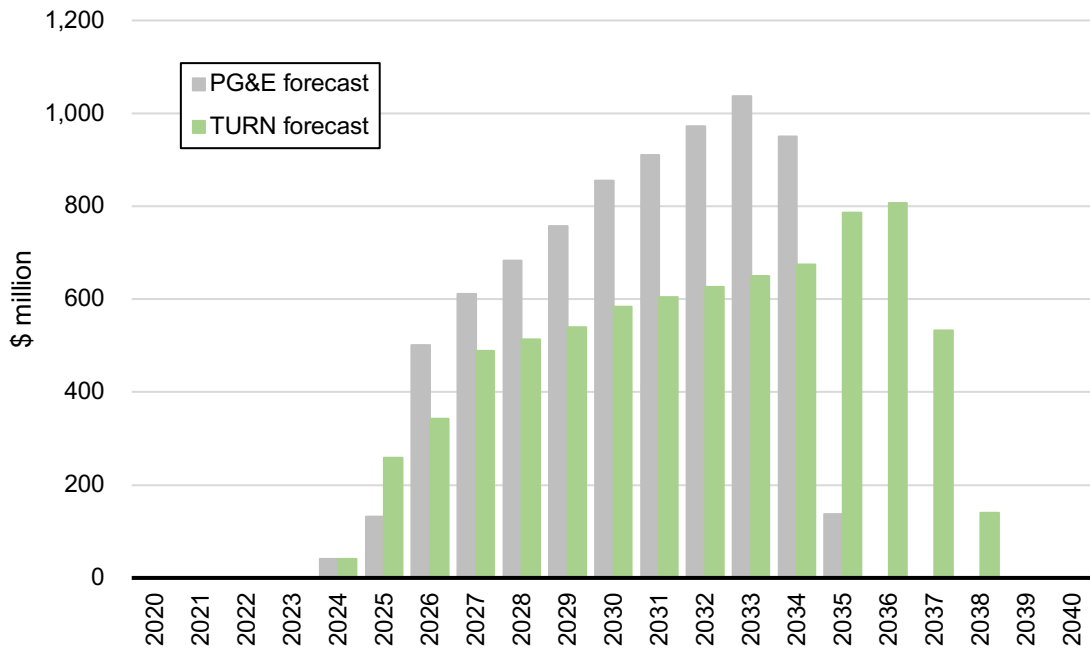
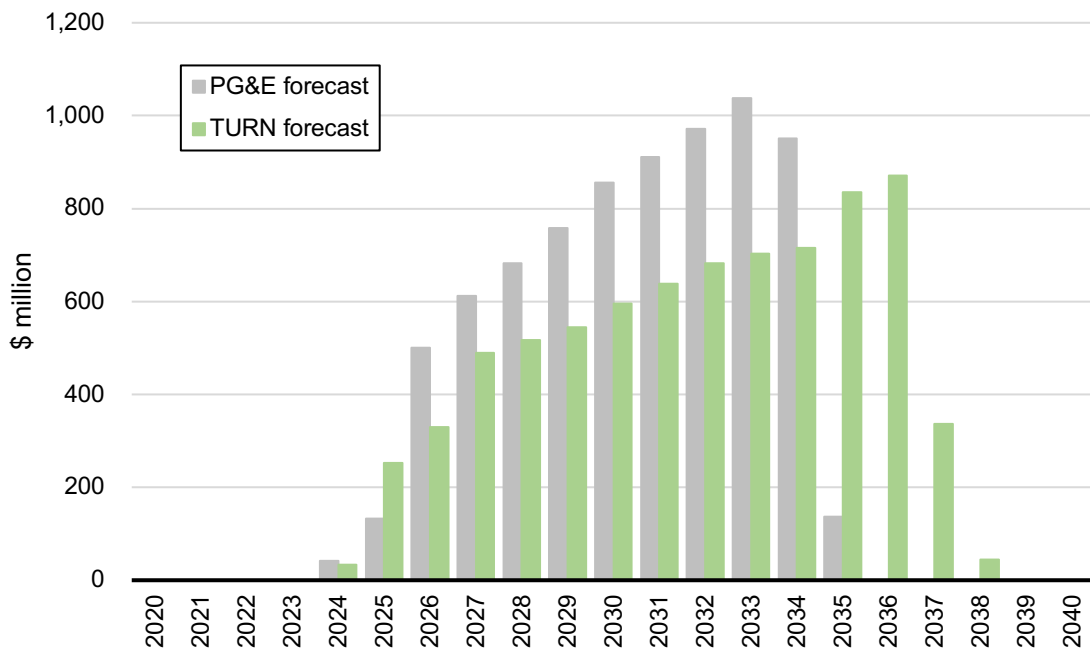# A.20-04-023

PG&E'S SECURITIZATION 2020

Redline of Prepared Testimony of Mark Ellis on behalf of The Utility Reform Network from Nov. 10, 2020 to Dec. 4, 2020 [Public Version]

1   **Figure 5: Additional Shareholder Contributions to Customer Credit Trust**[13]

2

3

4   *Source: PG&E; TURN analysis*

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[13] TURN identified several potential errors and inconsistencies in PG&E's calculations of annual tax
benefits which result in differences in TURN's and PG&E's estimates of the Additional Shareholder

1   Callan's key forecast assumptions to the investor averages. For the portfolio as a whole, the

2   investor-average expected return is 104 basis points (15%) lower with 10% less risk.[19]

3

4   **Table 2: TURN (investor average) and Callan 30-year return forecasts**

Line no.	Asset class	Weight	Geometric average return	Standard deviation	Arithmetic average return
	Callan				
1	Broad US equity	56%	7.15%	18.10%	8.63%
2	Non-US equity	24%	7.15%	20.50%	9.03%
3	US fixed income	20%	3.60%	3.75%	3.67%
4	Portfolio total	100%	6.79%	14.34%	7.73%
	TURN (investor average)				
5	Broad US equity	56%	5.97%	16.23%	7.18%
6	Non-US equity	24%	6.73%	17.87%	8.17%
7	US fixed income	20%	2.62%	4.26%	2.70%
8	Portfolio	100%	5.765%	12.85%	6.52%

5

6   **B.   The outlook for PG&E's income is a significant additional source of**
7   **uncertainty affecting the Securitization's ratepayer-neutrality**

8   PG&E's analysis of the Trust's value and ratepayer-neutrality only accounts for one

9   source of uncertainty – the Trust's returns. Another significant source of uncertainty is the

10   outlook for PG&E's income growth, which, as described above, determines the timing of the

11   Additional Shareholder Contributions and, therefore, the Trust's cash flows and prospects for

12   ratepayer-neutrality. There are three main sources of uncertainty in PG&E's future income,

13   illustrated in Figure 10: the overall growth trend, normal year-to-year variation that all utilities

14   face, and periodic one-off shocks (both positive and negative) to which PG&E has been uniquely

15   prone.

16

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[19] Among the nine reports with 30-year forecasts for all three asset classes, the average portfolio return and risk were essentially the same, 5.72% and 12.87%, respectively.

Appendix B: Inventory of Capital Market Assumptions Reports

Line no.	Investment management or consulting firm	Report title	Date
1	American Century Investments	Long-Term Capital Market Assumptions: Methodology and Models Underpinning Asset Allocation Solutions	9/19
2	Aon	Capital Market Assumptions	6/20
3	AQR Capital Management	Capital Market Assumptions: Expected real returns for major asset classes	3/20
4	BlackRock Investment Institute	Capital Market Assumptions	6/20
5	BNY Mellon Wealth Management	10-Year Capital Market Assumptions: Calendar Year 2020	3/20
6	Callan Institute	Capital Market Assumptions: 2020-2029	2/20
7	Cliffwater LLC	Cliffwater Q1 2020 Long Term (10 Year) Capital Market Assumptions	1/20
8	Evestment PMC Quantitative Research Group	Capital Markets Assumptions 2020	3/20
9	fi^3 Financial Advisors	April 2020 Outlook	4/20
10	GMO LLC	7-Year Asset Class Real Return Forecasts	8/20
11	Graystone Consulting (Morgan Stanley)	Annual Update of GIC Capital Market Assumptions	4/20
12	Invesco Investment Solutions	2020 Long-Term Capital Market Assumptions: Q3 update	6/20
13	J.P. Morgan Asset Management	2020 Long-Term Capital Market Assumptions: LTCMA Mark-to-Market: COVID-19 - new cycle, new starting point	3/20
14	Morningstar Research	Morningstar Markets Observer	6/20
15	Northern Trust	Capital Market Assumptions: Five-Year Outlook: 2021 Edition	8/20
16	PIMCO	PIMCO's Capital Market Assumptions, June 2020	6/20
17	QMA (PGIM)	2020 Q3 Capital Market Assumptions	6/20
18	Research Affiliates	Asset Allocation Interactive	~~8~~9/20
19	Sellwood Consulting LLC	2020 Capital Market Assumptions	2/20
20	State Street Global Advisors	Long Term Asset Class Forecast: Q2 2020	3/20
21	T. Rowe Price	Capital Market Assumptions: Five-Year Perspective 2020	1/20
22	UBS	Capital Market Assumption (CMA) & Strategic Asset Allocation (SAA) Updates: Strategic and equilibrium assumptions & SAA models by risk and investor characteristic	4/20
23	Vanguard Research	Beyond the pandemic: What to expect from stocks, bonds	6/20
24	Verus Advisory	2020 Capital Market Assumptions	11/19
25	Wells Fargo Investment Institute	2020 Capital Market Assumptions: Methodology--the building-block approach	7/20

Calculations supporting TURN's 30-year return forecasts can be found in Mr. Ellis's workpapers Excel file, tabs CMA and F7-9 T1 AppB.

Appendix C: Modeling assumptions and data sources for three sources of uncertainty TURN incorporated into PG&E's income outlook

Line no.	**EBIT growth trend**		
1	**Model**	Normally distributed random compound annual growth from 2024	
	Input assumptions	Mean	Standard deviation (uncorrelated)
2	Mean growth	1.86~~8~~%	~~0.82~~1.51%
3	= real demand	0.15%	0.69%
4	+ efficiency	-0.16%	0.21%
5	+ inflation	1.86%	~~0.40~~1.33%
6	**Years applied**	2025-50	
	Sources		
7	Demand	Weighted average (by share of PG&E net income, 82%/18% electric/gas) growth rate from 2020 Integrated Energy Policy Report (IEPR) Update "2020-30 Baseline Forecast – Mid Demand Case" for PG&E	24 weighted average growth rates from 8 electric and 3 gas IEPR demand forecasts
8	Efficiency	EIA AEO Reference case real electricity retail price growth rate	22 EIA AEO Reference and Side case real electricity price growth rates
9	Inflation	Federal Reserve Bank of St. Louis October 2020 monthly average 30-year breakeven inflation rate	~~22 EIA AEO Reference and Side case CPI growth rates~~Standard deviation of Consumer Price Index 30-year CAGRs, 1913-2019
	Year-to-year variation		
10	**Model**	Normally distributed random yearly percentage variation from PG&E (2021-24) or TURN continuously compounded (2025-50) static EBIT forecast	
11	**Input assumptions**	Zero mean. Standard deviation (14.9%) of percentage differences in PG&E's 1988-2019 EBIT from its underlying growth trend, excluding one-off shocks (greater than +/-50%)	
12	**Years applied**	2021-2050 with five-year linear phase-in factor (0.2 in 2021, … , 1.0 in 2025)	
13	**Source**	FERC Form 1 via S&P Global	
	Periodic shocks		
14	**Models**	Exponentially distributed random event arrival times	Log-normally distributed random percentage variation from PG&E (2021-24) or TURN continuously compounded (2025-50) static EBIT forecast
15	**Input assumptions**	Average frequency of one-off shocks to PG&E EBIT, 1988-2019	Historical EBIT shocks, 1988-2019 (percentage difference from underlying growth trend greater than +/-50%)
16		Mean Positive: 2/32 = 0.0625 Negative: 4/32 = 0.125	Mean | standard deviation Positive: 145% | 103% Negative: -373% | 234%
17	**Years applied**	Positive: 202~~3~~4-50; negative: 2021-50	
18	**Source**	FERC Form 1 via S&P Global	