Docket	:	A.25-09-014
Exhibit Number	:	CA-04
Commissioner	:	C. Harada
Admin Law Judge	:	C. Sisto
Witness	:	S. Topper

PUBLIC ADVOCATES OFFICE
CALIFORNIA PUBLIC UTILITIES COMMISSION

Report on the Results of Operations for Southern California Gas Company Cost Allocation Proceeding

Weather Design, Demand Forecasts (Core) & Fees, Large EG & Cogen Forecast, Noncore Demand & UAF, BTS & Off-System Delivery

San Francisco, California
May 15, 2025

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TABLE OF CONTENTS

Page

I. INTRODUCTION

This exhibit presents the analyses and recommendations of the Public Advocates Office at the California Public Utilities Commission (Cal Advocates) regarding Southern California Gas Company (SoCalGas or SCG) and San Diego Gas and Electric (SDG&E) (collectively Sempra) Cost Allocation Proceeding for the three years from January 1, 2027, through December 31, 2029.[1]

Sempra's Cost Allocation Proceeding (CAP) is the second phase of its 2024 General Rate Case (GRC).[2] The application presents Sempra's plan to distribute the costs of providing natural gas services among customer classes, broadly categorized as core customers and noncore customers. The Commission's decision on this application will allocate Sempra's authorized revenue requirement (previously decided in Sempra's 2024 GRC) among residential, commercial, industrial, electric generation, and non-core commercial and industrial customer classes from the period 2027-2029. Customer rates within each customer class will then be set according to an agreed upon rate design. The rate design proposed by Sempra can be found within its application in Chapter 12.[3]

This exhibit covers the following:

- Weather Design (Chapter 2)
- Meters, Residential (Chapter 3)
- Core Markets including Natural Gas Vehicle (NGV) (Chapter 3)
- Gas Price Forecast, and Core Brokerage Fee (Chapter 3)
- Large Electric Generation/CoGen Forecast (Chapter 4)
- Noncore and Consolidated Demand Forecasts (Chapter 5)

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[1] SCG and SDG&E Application, Page (p.) 1.

[2] Decision Addressing The 2024 Test Year General Rate Cases Of Southern California Gas Company And San Diego Gas & Electric Company, D.24-12-074; A.22-05-015, Application of Southern California Gas Company (U904G) for Authority, Among Other Things, to Update its Gas Revenue Requirement and Base Rates Effective on January 1, 2024.

[3] Exhibit (Ex.) SCG-Chapter 12, Rate Design.

- Off-System Delivery and Backbone Transportation Service Proposals (Chapter 10)

The purpose of Cal Advocates' testimony is to protect the interests of residential and small commercial California ratepayers.[4] This testimony proposes fair and equitable cost allocation where necessary, while ensuring demand forecasts and new meter growth (which Sempra presents within its application) remain accurate and thoroughly justified.

During the CAP's 2027-2029 period, Cal Advocates anticipates no demand growth and a declining customer meter base, due to the evolving nature of gas demand in California, constraints on SCG and SDG&E's existing pipeline systems, new line-extension allowance rules, California's long term decarbonization goals and climate change. In such an environment, any demand forecast—used to set rates for all customer classes—must be as accurate as possible. Accurate demand forecasts are necessary to avoid creating volatile changes in yearly rates due to various balancing accounts' under/overcollections from Sempra's GRC Phase I.[5]

Furthermore, as California's long-term energy goals phase in overtime and existing gas infrastructure cost drivers shift towards safety/reliability of gas delivery and maintenance of aging assets, residential customers must be protected from unaffordable gas bills. These same ratepayers are currently facing a widespread energy bill affordability crisis, and Sempra's proposal to hike rates here only further exacerbates this problem.[6] The first step to achieving such protection is by allocating SCG/SDG&E's revenue requirement fairly and effectively, based on actual gas usage with a decreasing dependence on customer class size. Residential ratepayers must be

[4] Cal. Pub. Util. Code § 309.5 (2025).

[5] The primary balancing accounts which recover additional amounts from customers to recover fixed distribution costs when throughputs are low (and revenues are under collected) are the Core Fixed Cost Account (CFCA), Noncore Fixed Cost Account (NFCA) and Backbone Transmission Balancing Account (BTBA). The account which directly affects residential ratepayers bills through True-Ups is the CFCA. A low demand year will adjust ratepayer bills upwards the following year.

[6] Ex. SCG-Chapter 12, p. MF-6, Table MF-1.

shielded from high fixed costs which will ultimately make their gas bills unaffordable. The way to do achieve these goals is to allocate costs based on gas usage now and into the future. This will send the most accurate price signals to all customers.

II. SUMMARY OF RECOMMENDATIONS

The following summarizes Cal Advocates' recommendations regarding SCG's and SDG&E's proposals outlined in Chapters 2-5 and 10.

Weather Design

- Cal Advocates proposes a new 1-in-35 Cold Year and 1-in-2 Average Year weather design for SCG and SDG&E, presented in Tables 1 and 2, respectively.

Table 1:
SCG Heating Degree Days Base Year (2024) Weather Design and Cal Advocates' Proposal

	SCG Proposed[7]			Cal Advocates Recommended			Amount SCG>Cal Advocates		
Month	1-in-35	1-in-10	1-in-2	1-in-35	1-in-10	1-in-2	1-in-35	1-in-10	1-in-2
January	307.9	291.5	260.4	332.5	307.7	260.4	-24.6	-16.2	0
February	261.6	247.7	221.2	282.5	261.4	221.2	-20.9	-13.8	0
March	207.6	196.6	175.6	224.2	207.5	175.6	-16.6	-10.9	0
April	116.9	110.7	98.9	126.2	116.8	98.9	-9.3	-6.2	0
May	55.7	52.8	47.1	60.1	55.7	47.1	-4.4	-2.9	0
June	11.1	10.5	9.3	12.0	11.1	9.3	-0.9	-0.6	0
July	2.2	2.1	1.9	2.4	2.2	1.9	-0.2	-0.1	0
August	1.7	1.6	1.4	1.8	1.7	1.4	-0.1	-0.1	0
September	5.0	4.7	4.2	5.4	5.0	4.2	-0.4	-0.3	0
October	29.1	27.6	24.6	31.4	29.1	24.6	-2.3	-1.5	0
November	141.9	134.3	120.0	153.2	141.8	120	-11.3	-7.5	0

[7] Ex. SCG-Chapter 2, Workpapers, p. 6, Table 4.

December	324.3	307.0	274.3	350.2	324.1	274.3	-25.9	-17.0	0
Total	1,465	1,387	1,239	1,582	1,464	1,239	-117	-77	0

Table 2:
SDG&E Heating Degree Days Base Year Weather Design and Cal Advocates' Proposal

	SDG&E Proposed[8]			**Cal Advocates Recommended**			**Amount SDG&E>Cal Advocates**		
Month	1-in-35	1-in-10	1-in-2	1-in-35	1-in-10	1-in-2	1-in-35	1-in-10	1-in-2
January	300.5	281.9	246.6	307.0	286.2	246.6	-6.5	-4.2	0
February	262.3	246.1	215.2	268.0	249.8	215.2	-5.7	-3.7	0
March	215.0	201.6	176.4	219.6	204.7	176.4	-4.6	-3.0	0
April	127.3	119.4	104.4	130.0	121.2	104.4	-2.7	-1.8	0
May	60.7	57.0	49.8	62.0	57.8	49.8	-1.3	-0.9	0
June	10.1	9.5	8.3	10.3	9.6	8.3	-0.2	-0.1	0
July	0.6	0.6	0.5	0.6	0.6	0.5	0.0	0.0	0
August	0.2	0.2	0.1	0.2	0.2	0.1	0.0	0.0	0
September	1.2	1.2	1.0	1.2	1.2	1	0.0	0.0	0
October	23.5	22.1	19.3	24.0	22.4	19.3	-0.5	-0.3	0
November	128.5	120.5	105.4	131.3	122.3	105.4	-2.8	-1.8	0
December	307.0	288.0	251.9	313.6	292.3	251.9	-6.6	-4.3	0
Total	1,437	1,348	1,179	1,468	1,368	1,179	-31	-20	0

- Cal Advocates recommends an updated climate trend warming pattern of -13.6 Heating Degree Days (HDD's) per year for SCG and -16.9 HDD's/yr for SDG&E. See Tables 3 and 4 below.

[8] Ex. SCG-Chapter 2, Workpapers, p. 30, Table 4.

Table 3
SCG 1-in-2 Average Year and 1-in-35 Cold Year Designs and Cal Advocates' Proposal

	SCG Proposed[9]			Cal Advocates Recommended			Amount SCG>Cal Advocates		
	1-in-35	1-in-10	1-in-2	1-in-35	1-in-10	1-in-2	1-in-35	1-in-10	1-in-2
2024	1465	1387	1239	1582	1464.0	1239	-117	-77.0	0
2025	1458	1380	1232	1568.4	1450.4	1225.4	-110.4	-70.4	6.6
2026	1451	1373	1225	1554.8	1436.8	1211.8	-103.8	-63.8	13.2
2027	1444	1366	1218	1541.2	1423.2	1198.2	-97.2	-57.2	19.8
2028	1437	1359	1211	1527.6	1409.6	1184.6	-90.6	-50.6	26.4
2029	1430	1352	1204	1514	1396.0	1171	-84	-44.0	33

Table 4
SDG&E 1-in-2 Average Year and 1-in-35 Cold Year Designs and Cal Advocates' Proposal

	SDG&E Proposed[10]			Cal Advocates Recommended			Amount SDG&E>Cal Advocates		
	1-in-35	1-in-10	1-in-2	1-in-35	1-in-10	1-in-2	1-in-35	1-in-10	1-in-2
2024	1437	1348	1179	1468	1368	1179	-31	-20.3	0
2025	1431	1342	1173	1451.1	1351.4	1162.1	-20.1	-9.4	10.9
2026	1425	1336	1167	1434.2	1334.5	1145.2	-9.2	1.5	21.8
2027	1419	1330	1161	1417.3	1317.6	1128.3	1.7	12.4	32.7
2028	1413	1324	1155	1400.4	1300.7	1111.4	12.6	23.3	43.6
2029	1407	1318	1149	1383.5	1283.8	1094.5	23.5	34.2	54.5

Meters, Residential, Core Markets (Including NGV), Gas Price Forecast, and Core Brokerage Fee:

[9] Ex. SCG-Chapter 2, Workpapers, "Ch 2 Martinez_Scg Weather Design CAP 2027.xlsx", Sheets "Annual_Hdd(Avg,Cold,Hot)", "Annual_Hdd(Avg,Cool,Warm)"

[10] Ex. SCG-Chapter 2, Workpapers, "Ch 2 Martinez_Sdge Weather Design CAP 2027.xlsx", "Annual_Hdd(Avg,Cold,Hot)", "Annual_Hdd(Avg,Cool,Warm)"

- Cal Advocates recommends an adjusted meter growth model, resulting in adjusted meter counts during the CAP period. See Tables 5 and 6 below.

Table 5
SCG Residential Active Meter Forecasts and Cal Advocates' Proposal

	SCG Proposed[11]		Cal Advocates Recommended		Amount SCG>Cal Advocates	
	Single Family	Multi-Family	Single Family	Multi-Family	Single Family	Multi-Family
2027	3,896,050	1,893,762	3,853,631	1,872,188	42,419	21,574
2028	3,907,817	1,898,834	3,847,750	1,868,602	60,067	30,232
2029	3,919,286	1,904,704	3,840,951	1,864,715	78,335	39,989

Table 6
SDG&E Residential Active Meter Forecasts and Cal Advocates' Proposal

	SDG&E Proposed[12]	Cal Advocates Recommended	Amount SDG&E>Cal Advocates
2027	894,893	879,706	15,187
2028	898,184	876,982	21,202
2029	901,685	873,973	27,712

- Cal Advocates scrutinizes SCG and SDG&E's core residential demand forecasting methodology and recommends SCG and SDG&E resubmit their demand forecasts with appropriate adjustments.

Large Electric Generation/CoGen Forecast

- Cal Advocates recommends SCG and SDG&E utilize the most recent 2025 IEPR AAEE 3 and AAFS 2 Hourly Impacts Tables, posted on the California Energy Commission's CEC website.

[11] Ex. SCG-Chapter 3, p. EM-5, Table EM-3.

[12] Ex. SCG-Chapter 3, p. EM-7, Table EM-5.

Noncore and Consolidated Demand Forecasts

- Cal Advocates recommends SCG and SDG&E update their 2006 UAF study.

Off-System Delivery and Backbone Transportation Service Proposals

- Cal Advocates recommend rejecting BTS proposal 1.

III. OVERVIEW OF CAL ADVOCATES' ANALYSES

Cal Advocates conducted its analysis by thoroughly reviewing SCG and SDG&E's testimony, workpapers, and discovery responses. Cal Advocates issued numerous data requests and analyzed the responses to obtain additional information. Cal Advocates then prepared various in-house models, which present various forecasts for meter growth and monthly standard weather designs. These models were presented for the purpose of improving on SCG and SDG&E's existing models, ensuring accurate forecasts and ultimately protecting residential ratepayers. Cal Advocates also made recommendations on policies presented in SCG and SDG&E's testimony and scrutinized SCG and SDG&E's various methods.

IV. WEATHER DESIGN

A. Overview

The weather design for SCG and SDG&E is derived from a historic set of Heating-Degree-Day (HDD) metrics, climate-adjusted warming trends and cold-year probability criteria to forecast temperature-sensitive gas demand with greater accuracy. SCG and SDG&E first define Average Year and 1-in-35 Cold Year scenarios using 20 years of HDD data (2005-2024)[13] and apply annual HDD reduction (7 HDDs/yr for SCG, 6 HDDs/yr SDG&E) to reflect long-term warming.[14] For purposes of determining peak cold year scenarios, SCG and SDG&E adjust the raw data to remove an

[13] Ex. SCG-Chapter 2, pp. EM-2 and EM-6.

[14] Ex. SCG-Chapter 2, Workpapers, pp. 7 and 30.

anomalous warm period from 2014–2018[15] and calculate an adjusted standard deviation that is smaller in magnitude.[16]

For peak-day system planning, the design uses extreme-event temperature thresholds—40.6°F for SoCalGas and 43.6°F for SDG&E—which SCG and SDG&E determined to be reliable metrics of service under rare but critical cold-weather conditions.[17] Cal Advocates does not oppose SCG and SDG&E's peak day methodology.

B. SCG and SDG&E' Requests Regarding Weather Design

SCG and SDG&E request approval of their weather designs. SCG and SDG&E use their weather designs in the forecasts of weather-sensitive gas market segments in other chapters. Specifically, this includes approval of its Average Year and Cold Weather Year designs, as well as the utilities' respective Peak Day Temperature designs. Cal Advocates does not oppose either utility's Peak Day Temperature design.

C. Cal Advocates Analysis

Cal Advocates opposes SCG and SDG&E's Cold Year designs, as well as the magnitude of the warming trends SCG and SDG&E applied to both the Average and Cold Year design HDDs over the 2027-2029 CAP period.

Regarding the calculation of the Cold Year forecast, Cal Advocates opposes the 20-year regression shift that SCG and SDG&E discuss in their Chapter 2 workpapers.[18] In the workpapers, SCG and SDG&E adjust the standard deviation for the calculated 20 year mean of yearly HDDs over the 2005-2024 period.[19] Specifically, the standard deviation represents the "the average of the standard deviations of the 20 most recent

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[15] Ex. SCG-Chapter 2, Workpapers, pp. 4, 5, 28, 29.

[16] Id.

[17] Ex. SCG-Chapter 2, pp. EM-5 and EM-7.

[18] Ex. SCG-Chapter 2, Workpapers, pp. 4, 5, 28, 29.

[19] Ex. SCG-Chapter 2, Workpapers, p. 5, Table 3, p. 28, Table 3.

20-year periods",[20] adjusted to account for an anomalous period of warm years from 2014-2018.[21] SCG and SDG&E run a simple regression of HDD's on a time trend and a regime dummy variable (a dummy variable representing whether a year belongs in the warm period of 2014-2018). From the model, the utilities take the coefficient on the regime dummy (the coefficient is negative) and add the positive value of that coefficient to each year during the 2014-2018 warm period to derive adjusted HDD values for that period. SCG and SDG&E then compute the standard deviation from the resulting 20 years of data (15 unadjusted years plus 5 adjusted years). The reported standard deviation for SCG is 111.66, while the standard deviation for SDG&E is 127.41.[22] These same deviations are applied to the Cold Year Designs (1-in-35 and 1-10 designs). Adjusting for the warm years using this process has the effect of reducing the reported standard deviation by 92.97 and 160.9 for SCG and SDG&E, respectively.[23]

Cal Advocates opposes the large corrections for the following reasons. First, SCG and SDG&E only use 20 years of data to determine the regime coefficient, despite possessing full datasets of 75 years and 53 years, respectively, for each utility.[24] This shorter window means less statistical power to distinguish a true structural regime from normal volatility. Furthermore, the 2014-2018 set represents nearly 10% of the entire historical record for SDG&E's dataset (53 years), and 25% of the data used to determine the regression shift (20 years). Referring to nearly 10% of any dataset as an

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[20] Ex. SCG-Chapter 2, Workpapers, p. 5.

[21] Ex. SCG-Chapter 2, Workpapers, p. 4, "the standard deviation has been calculated using an approach that compensates for the annual HDD values for the years 2014-2018 in SoCalGas' service territory being dramatically lower than in any preceding year going back to 1950."

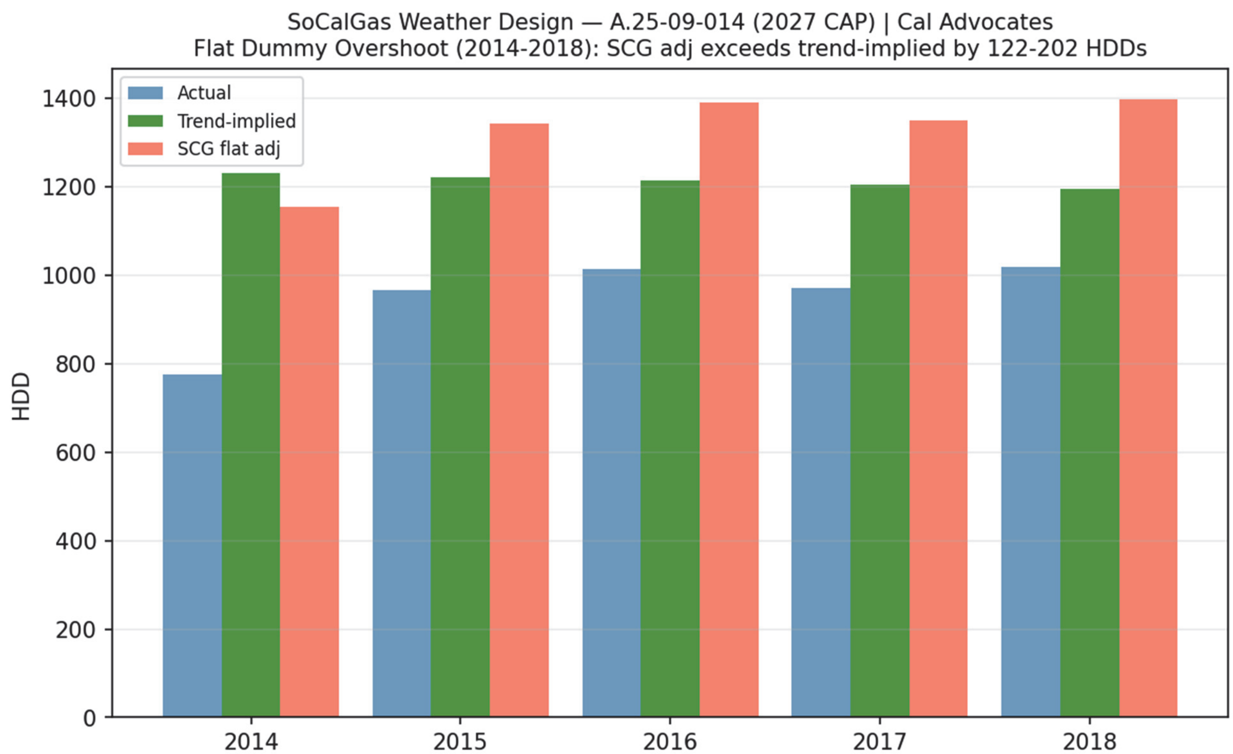
[22] Ex. SCG-Chapter 2, Workpapers, pp. 5 and 29.

[23] The standard deviation of the HDD values for 2005-2024 are 204.6 and 287.6 for SCG and SDG&E, respectively. See excel workpapers, "Ch 2 Martinez_Scg Weather Design CAP 2027.xlsx" and "Ch 2 Martinez_Sdge Weather Design CAP 2027.xlsx", sheets "Yr_by_Mo(Annual_Hdd)" for SCG and SDG&E, respectively.

[24] Ex. SCG-Chapter 2, excel workpapers, "Ch 2 Martinez_Scg Weather Design CAP 2027.xlsx" and "Ch 2 Martinez_Sdge Weather Design CAP 2027.xlsx", sheets "Yr_by_Mo(Annual_Hdd)" for SCG and SDG&E, respectively. The available HDD data spans from 1950-2024 and 1972-2024 for SCG and SDG&E, respectively.

anomaly (let alone 25% of data used in a regression sample) is statistically inaccurate. Secondly, the flat adjustment for SCG is -378 HDD's while SDG&E's is -585.[25] Both adjustments alone are larger than the 1-in-35 year peak cold month of December for each utility and statistically overshoot the trend-implied values in all but one of the ten total years for the utilities, even up to 202 HDD's in one case.[26] Figures 1 and 2 show the statistical overshoot of the regime dummy correction.

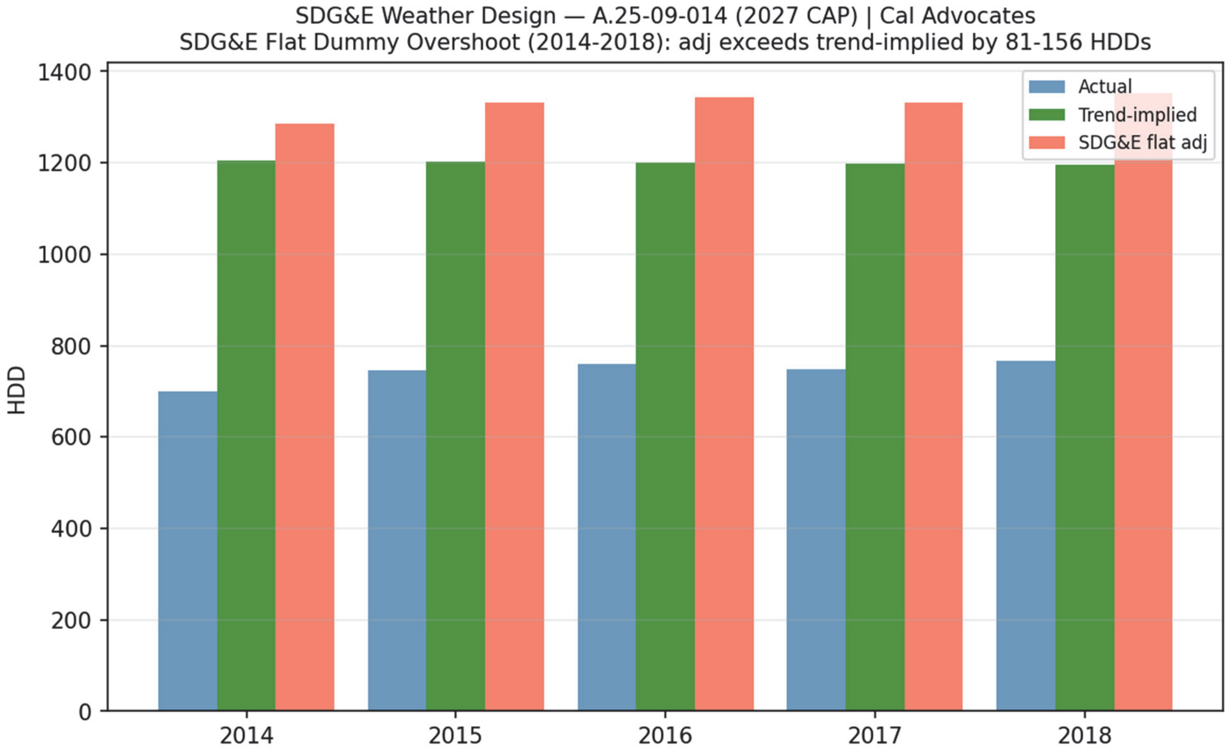
Figure 1
SCG Weather Design Adjustment Alters the Distribution of Recorded Weather, Resulting in Overestimation of HDDs



[25] Ex. SCG-Chapter 2, Workpapers, pp. 5 and 28, Table 3, coefficient on Regime Dummy Variable.

[26] Ex. SCG-Chapter 2, Workpapers, pp. 6 and 30, Table 4 shows December month 1-in-35 Cold Year December months of 324.3 and 307.0 for SCG and SDG&E, respectively. These peak month amounts fall below the adjustment values of 378 and 585 for SCG and SDG&E, respectively. To determine the trend-implied values for the warm anomaly years, Cal Advocates' ran a simple OLS trend fitted on the full 75-year dataset for SCG and full 53-year dataset for SDG&E. Figures 1 and 2 show that, relative to the trend-implied OLS values, 4 out of 5 years show a dummy overshoot for SCG and 5 out of 5 years for SDG&E.

Figure 2
SDG&E Weather Design Adjustment Alters the Distribution of Recorded Weather, Resulting in Overestimation of HDDs

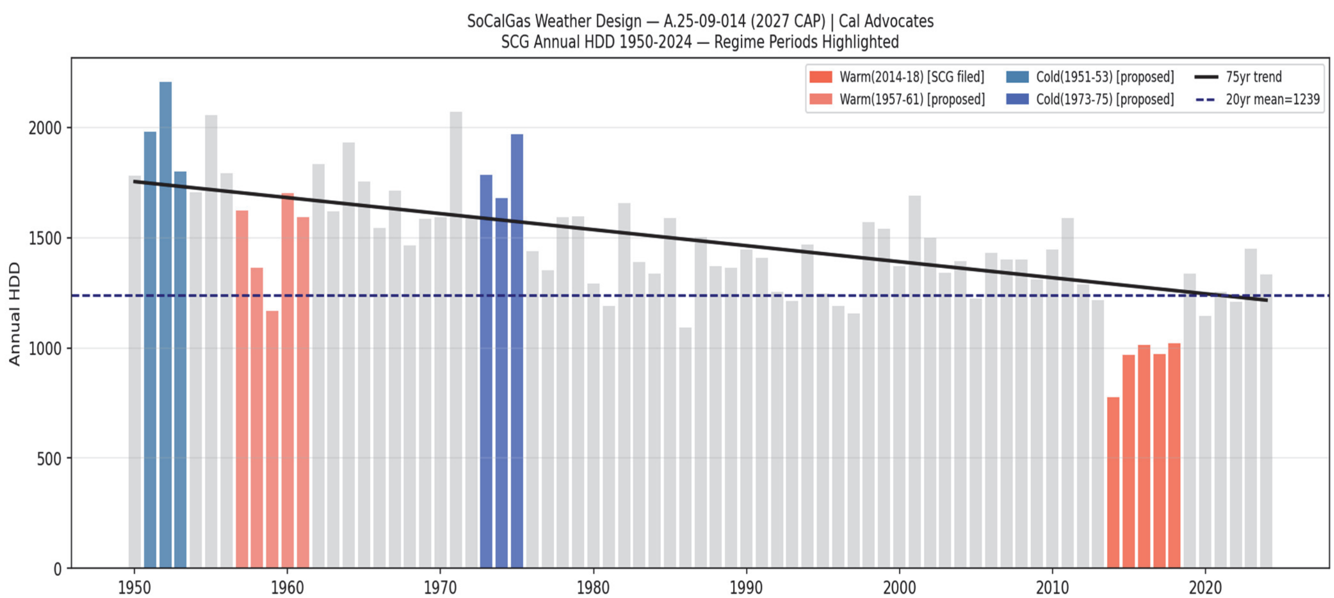


The adjustments are too severe for both models because neither the data nor the actual model are robust, given the shortened time frame and degrees of freedom. In addition, SCG and SDG&E add an equivalent amount to each of the five years, regardless of how far the year itself deviated from the historic mean. This occurs because the dummy variable captures all five years (as opposed to each year individually), therefore applying the same coefficient to all five years. The consequence is that years with abnormal negative deviations from the historic mean are overcorrected, while years with highly abnormal negative deviations are insufficiently corrected for. A "one-size-fits-all adjustment" masks the variation within the warm period rather than accurately reflecting it.

The final reason for opposing the correction is the lack of symmetry in adjustment years. For example, including an anomaly warm period but not a reciprocal cold year period could bias any sort of regression model by incorrectly assigning all the deviation to a downward shaped period, thus undermining the actual deviation that occurs in the HDD measurements over time. This tells the model that "all of the deviation from the consistent linear time trend belongs to one period where warm weather occurred.” Ironically, including only the time trend and the regime dummy in the model nullifies the effect of the time trend itself.[27]

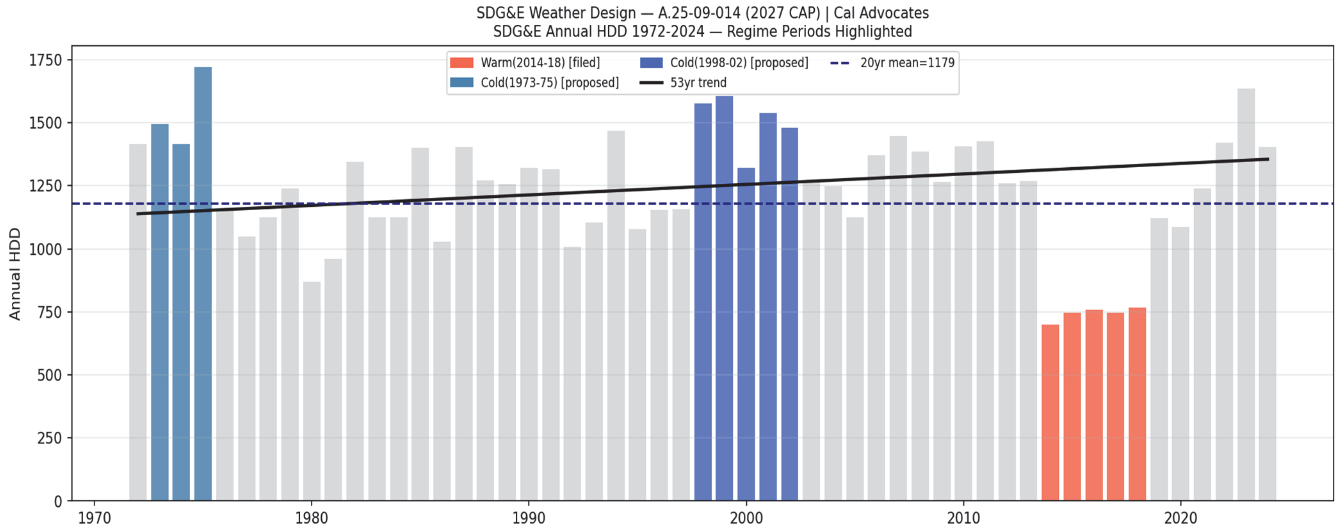
The Commission should approve Cal Advocates’ models for SCG and SDG&E because they do not capture the effect of the time trend itself. Rather, the intercept, the time trend, and all period year dummies are statistically significant at $p < 0.05$ or better. In addition, Cal Advocates incorporated cold year periods into the model, along with the full dataset of HDD measurements. Figures 3 and 4 show the trend and fitted values for Cal Advocates’ recommended models.

Figure 3
Cal Advocates’ 75-Year Regression Shift Trend Adjustment Model for SCG



[27] Ex. SCG-Chapter 2, Workpapers, pp. 5 and 28, Table 3, see t-stat and p-value on Time variable, which represents the time trend.

Figure 4
Cal Advocates' 53-Year Regression Shift Trend Adjustment Model for SDG&E



SCG and SDG&E derive the adjusted standard deviations from the standard error of the regressions, which SCG and SDG&E calculate using the degrees of freedom in the model and the sum of squared residuals (SSR) to derive the Root Mean Squared Error (RSME).[28] Cal Advocates recommends standard deviations of 169.39 and 142.51 for SCG and SDG&E, respectively.[29] Cal Advocates applies these in the same way as SCG and SDG&E did in their workpapers: 1.328 times the standard deviation to derive the 1-in-10 Cold Year design and 2.025 times the standard deviation to derive the 1-in-35 Cold Year design.[30] The resulting forecasts are depicted in Tables 1 and 2 in Section II.

The climate trend forecasts developed by SCG and SDG&E are -7 HDD's/yr and -6 HDD's/yr, respectively. In testimony, the utilities explain that the previous warming trends proposed in their 2024 cost allocation proceeding (A.22-09-015) were approved

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[28] The classic formula is: $\sqrt{\frac{SSR}{df}}$

[29] These standard deviations are derived from Cal Advocates' recommended models and their respective RMSE values. For SCG, Cal Advocates' model is: HDD ~ Intercept + Trend + Warm(1957–61) + Warm(2014–18) + Cold(1951–53) + Cold(1973–75). For SDG&E, Cal Advocates' model is: HDD ~ Intercept + Trend + Warm(2014–18) + Cold(1973–75) + Cold(1998–02).

[30] SCG and SDG&E Application, Chapter 2 Workpapers, pp. 6 and 29.

by the Commission.[31] In SCG and SDG&E's workpapers, both utilities state that "the annual [climate change] reduction is based on the latest twenty-year trend in 20-year-averaged HDDs."[32] New evidence presented by Cal Advocates in this proceeding will show that the warming trends proposed by SCG and SDG&E here understate what is likely to occur during the 2027-2029 CAP period.

As explained in the quote above, SCG and SDG&E derived their climate trends from a simple average of the change in rolling 20-year-averaged HDDs over the most recent 20 years of rolling average data (2005-2024). Essentially: the rolling average for 2005 is the average HDD for each of the years 1986-2005, the rolling average for 2006 is the average HDD for each of the years 1987-2006, and so on until the final year rolling average for 2024 is the average HDD for each of the years 2005-2024. The change in rolling 20-year averaged HDDs between each year (i.e. 2004 to 2005, 2005 to 2006, 2006 to 2007, 2007 to 2008, … , 2023 to 2024) is then averaged to derive the climate trend.

Cal Advocates opposes this method for multiple reasons. First, both utilities computed two numbers from their Trend Analysis sheets and then chose the smaller one as the proposed trend.[33] The other computed trends were derived from a fitted linear regression model on the rolling 20 year HDD averages, and resulted fitted trends of -8.9 and -9.6 HDD's/yr for SCG and SDG&E, respectively.[34] SCG cited "based on the fitted trend, it was decided to decrease average-year and cold-year forecasted HDDs by 7 HDDs per year, starting with the first forecast year of 2025",[35] while SDG&E stated that "after CGR 2022, which incorporated a tread of -6 HDD per year, HDDs of 3 consecutive years from 2022 to 2024 are colder than average years, it was decided to decrease average-year and cold-year forecasted HDD's by 6 HDDs per year based on

[31] Ex. SCG-Chapter 2, p. EM-2, footnote 2.

[32] Ex. SCG-Chapter 2, Workpapers, pp. 7 and 30.

[33] Ex. SCG-Chapter 2, Excel Workpapers, "Ch 2 Martinez_Scg Weather Design CAP 2027.xlsx" and "Ch 2 Martinez_Sdge Weather Design CAP 2027.xlsx", sheet "Trend Analysis".

[34] Id.

[35] Ex. SCG-Chapter 2, Workpapers, p. 6.

average change of the last 20 years, which is the same tread as that in CGR 2022 and CGR 2024, starting with the first forecast year of 2025."[36] As stated by SCG, there is no reasoning provided for such a decision.[37] For SDG&E, the utility failed to mention that the very CGR amounts that they cite were provided to the CGR by the utility itself.[38] Hence, the amounts in the CGR were not independently determined; they were determined by SDG&E.[39] There is no reasoning given (in either CGR report or here) as to why the amounts reported in the 2022 CGR and 2024 CGR were not -8.9 and -9.6, respectively, instead of the lower amounts. The regression-fitted trend is able (by definition) to smooth out year-to-year noise and provides a statistically defensible estimate. SCG and SDG&E have provided zero substantiation as to why the actual fitted regression trend—which minimizes the sum of squared residuals, captures the trend over time and more accurately captures a downward change than a simple average of changes—was completely unused. Secondly, the 20-year window is arbitrary and unjustified. Table 7 presents a window sensitivity analysis, showing how the climate trend adjusts based on the number of years used to compute year-over-year changes:

[36] Ex. SCG-Chapter 2, Workpapers, p. 30.

[37] Ex. SCG-Chapter 2, Workpapers, p. 7, "Based on the fitted trend, it was decided to decrease average-year and cold-year forecasted HDDs by 7 HDDs per year, starting with the first forecast year of 2025." No reason was provided beyond this statement.

[38] 2024 California Gas Report (CGR), p. 106 and 2022 CGR, p. 117.

[39] In the 2022 CGR (p. 117) and 2024 CGR (p. 106), the report states "In our 2022 CGR, SoCalGas and SDG&E have included a climate-change warming trend that gradually reduces HDD's over the forecast period…the annual reductions are based on the latest 20-year trend in 20- year-averaged HDDs. That is, they are based on the observed trend in changes starting with average HDD's for years 1983-2002, then 1984-2003, 1985-2004...and ending with the average HDD's for years 2002-2021." The CGR used SCG and SDG&E's climate trend and the calculation stated in both CGR's is the same as the methodology used in the CAP here.

Table 7
Window Sensitivity Analysis for Climate Trend OLS Regressions

Window	SCG Trend	SDG&E Trend
(2005-2024) 20-year window (Utility Proposed)	-8.86	-9.63
(2010-2024) 15-year window	-12.60	-14.93
(2015-2024) 10-year window	-12.66	-13.85

The shorter windows show steeper warming. In fact, the 20-year window SCG and SDG&E use understates the recent acceleration because it includes the early 2000s, which were relatively cool by current standards.[40] The sensitivity analysis shows that the warming trend has been intensifying, not moderating.

Finally, multiple other reports claim larger warming trends than SCG and SDG&E propose. California's South Coast division—which covers the core of both SCG's and SDG&E's service territories—showed the largest percentage decline in HDD's of any California climate region over the 1972–2021 period, with a measured rate of change of −147 HDDs per decade, or approximately −14.7 HDDs per year.[41] This information is derived from the National Oceanic and Atmospheric Administration's (NOAA's) nClimDiv database using an independent methodology, and it is substantially larger than either utility's filed value.[42] In addition, the regional rates of change for the most recent 50-year period (1972–2021) are substantially higher than for the previous 77-year period (1895–1971).[43] The CEC sponsored a peer-reviewed technical report produced by

[40] Average yearly HDDs from 2005-2009 was 1371, while average yearly HDDs from 2020-2024 was 1279. During the 10-year period in between, average HDDs fell by 9.2

[41] "Indicators of Climate Change in California (2022)", p. III-41, Table 1—Divisional Trends in Heating Degree Days, South Coast Drainage Division. https://oehha.ca.gov/sites/default/files/media/epic/downloads/02degreedays.pdf

[42] The nClimDiv database can be found at: https://www.ncei.noaa.gov/access/metadata/landing-page/bin/iso?id=gov.noaa.ncdc%3AC00005

[43] "Indicators of Climate Change in California (2022)", p. III-41, Table 1—Divisional Trends in Heating Degree Days, see change from -45 HDDs to -147 HDDs when comparing the 1895-1971 (77 years) and 1972-2021 (50 years) periods, respectively. https://oehha.ca.gov/sites/default/files/media/epic/downloads/02degreedays.pdf

Scripps Institution of Oceanography using LOCA-downscaled CMIP5 models in 2018.[44] This report, referred to as California's Fourth Climate Change Assessment, projects statewide warming of 2–4°C (35.6°F to 39.2°F) under the medium emissions scenario (RCP 4.5) and 4–7°C (39.2°F to 44.6°F) under the high emissions scenario (RCP 8.5) by the end of the century.[45] The 4th Assessment uses the same LOCA-downscaled models that underlie Cal-Adapt.[46] The Office of Planning and Research (OPR) recommends that agencies use RCP 8.5 for analyses through 2050.[47] Even without the high emissions scenario, Cal Adapt explicitly states that "annual temperature increases have already exceeded 1°F over most of California, with some areas exceeding 2°F."[48]

Without arbitrarily proposing a higher warming trend, Cal Advocates recommends a linear piecewise trend that captures both SCG and SDG&E's existing data, while incorporating a kink structure that is measurable and defensible within the data itself.[49] The piecewise linear model is the most accurate and statistically defensible specification for capturing the HDD warming trend in both service territories because it correctly reflects the structural reality of the existing data used for the weather design. Specifically, the data exhibits two distinct regimes rather than a single uniform slope. SCG and SDG&E both fit a single straight line (using Excel's LINEST

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[44] Pierce, D.W., J.F. Kalansky, and D.R. Cayan (Scripps Institution of Oceanography), Climate, Drought, and Sea Level Rise Scenarios for California's Fourth Climate Change Assessment, California Energy Commission, Publication No. CNRA-CEC-2018-006 (August 2018). Available at: https://www.energy.ca.gov/sites/default/files/2019-11/Projections_CCCA4-CEC-2018-006_ADA.pdf

[45] Id, "Highlights", p. iv.

[46] Id, "Abstract", p. iii, bottom.

[47] Confirmed on Cal-Adapt website: Cal-Adapt, "Which RCP scenarios should I use in my analysis?", available at: https://cmip5.cal-adapt.org/help/faqs/which-rcp-scenarios-should-i-use-in-my-analysis/

[48] California Climate Adaptation Strategy, "Summary of Projected Climate Change Impacts on California," available at: https://climateresilience.ca.gov/overview/impacts.html

[49] The structural break is set at 2012. The kink coefficient represents the change in slope at the break point. Both kinks are statistically significant at $p < 0.0001$ (SCG: $t = -11.04$; SDG&E: $t = -11.89$).

function) across the entire sample period,[50] but this forces one slope to describe a period when the rolling 20-year average was essentially flat and a later period when it declined sharply, causing the estimated trend to average across the two and understate the recent acceleration in warming.

Cal Advocates' recommended piecewise linear model instead estimates a pre-2012 slope and a separate post-2012 slope joined at a single break point.[51] The break at 2012 is not a choice made to maximize the resulting warming trend—it is the direct mechanical consequence of the 2014–2018 warm period, which both utilities explicitly identified and corrected for in their cold-year standard deviation calculations discussed earlier. When the warm years began entering the trailing 20-year window around 2012–2013, the rolling average inflected sharply downward (peaked and then began a sharp decline each year), which is captured in the piecewise model. The post-break slope for SCG is −13.6 HDDs/yr and -16.9 HDD's/yr for SDG&E, both statistically significant at $p < 0.0001$.[52] The kink coefficient (the change in slope at the breakpoint) is also highly significant at $p < 0.0001$ for both utilities, meaning the probability that the model's structural break is insignificant is less than one in ten thousand.[53] Cal Advocates ran additional goodness-of-fit comparisons, showing that the piecewise model achieved an

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[50] Ex. SCG-Chapter 2, Excel Workpapers, "Ch 2 Martinez_Scg Weather Design CAP 2027.xlsx" and "Ch 2 Martinez_Sdge Weather Design CAP 2027.xlsx", sheet "Trend Analysis". Note that SCG/SDG&E did not actually use the fitted model output, they used the average of the year-to-year changes in the 20-yr rolling averages, as explained earlier, which resulted in a smaller trend than the fitted model.

[51] Cal Advocates' piecewise linear model takes the form: $HDD\_avg(t) = \beta_0 + \beta_1 t + \beta_2 \cdot \max(0, t - t^*)$, where it is elapsed years from the first observation, t^* is the elapsed year corresponding to the 2012 break, and β_2 captures the change in slope at the break. The post-break slope is $\beta_1 + \beta_2$. This specification is estimated by OLS on the rolling 20-year average HDD series: N = 21 observations for SCG (2004–2024) and N = 34 for SDG&E (1991–2024), which was taken directly from the excel workpapers "Ch 2 Martinez_Scg Weather Design CAP 2027.xlsx" and "Ch 2 Martinez_Sdge Weather Design CAP 2027.xlsx", sheet "Trend Analysis".

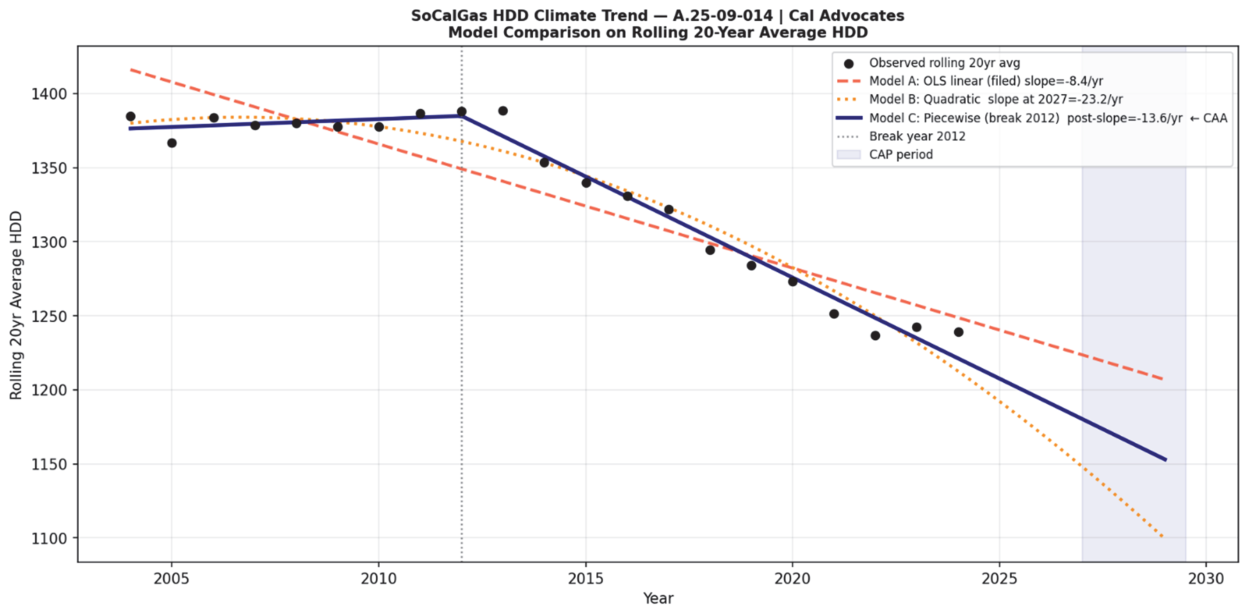
[52] SCG post-break slope: −13.641 HDDs/yr (SE = 1.332 derived from kink coefficient, t = −10.24 on the kink, $p < 0.0001$, 95% CI [−17.51, −11.91] on the kink coefficient). SDG&E post-break slope: −16.851 HDDs/yr (SE = 1.9691, t = −11.89, $p < 0.0001$, 95% CI [−27.43, −19.40]). Both are estimated on rolling 20-year average HDD series using OLS with a 2012 structural break.

[53] In addition, F-tests of the piecewise specification against the restricted single-slope model confirm the breaks are jointly significant: F = 121.888 ($p < 0.0001$) for SCG and F = 141.372 ($p < 0.0001$) for SDG&E.

Adjusted R^2 of 0.9762 for SCG and 0.8106 for SDG&E, compared to 0.8249 and −0.0203, respectively.[54]

Figures 5 and 6 show the goodness-of-fit comparison between a normal linear model, a quadratic model and Cal Advocates' recommended models for SCG and SDG&E:

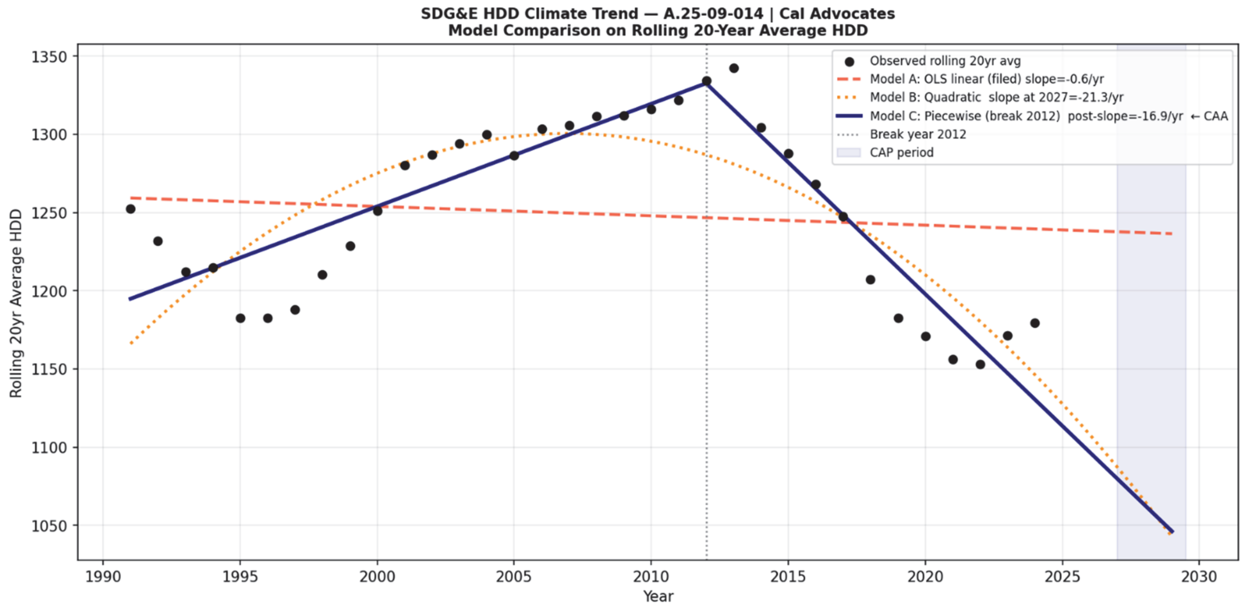
Figure 5
SCG Model Comparisons over the 2004-2029 Window



[54] Note that a negative Adjusted R^2 means SDG&E's LINEST approach explains less variance in the data than a flat horizontal mean would, making it statistically indefensible as a forecasting tool. Therefore, Cal Advocates refitted a model which would effectively capture the variance.

Figure 6

SDG&E Model Comparisons over the 1991-2029 Window



Importantly, the main goal does not necessarily involve capturing a model that correctly forecasts the next 30-50 years of climate change. Rather, the goal is to correctly forecast demand during the CAP period from 2027-2029. While Cal Advocates acknowledges 2023 and 2024 HDD values above the piecewise trend, the 20-year window indicates that yearly HDD values are more likely than not to continue a downward trajectory despite two recent up ticks in HDDs. The arguments Cal Advocates presented earlier more than substantiate and confirm expected warming trends at or near what Cal Advocates presents. Simply put, the models which Cal Advocates propose far more effectively capture the trend in SCG and SDG&E's own historical HDD readings, using more available data than SCG and SDG&E utilized in determining their proposed warming trends.[55]

[55] The specifications estimated by OLS on the rolling 20-year average HDD series for Cal Advocates are as follows: N = 21 observations for SCG (2004–2024) and N = 34 for SDG&E (1991–2024), which was taken directly from the excel workpapers "Ch 2 Martinez_Scg Weather Design CAP 2027.xlsx" and "Ch 2 Martinez_Sdge Weather Design CAP 2027.xlsx", sheet "Trend Analysis". N = 21 and N = 34 observations exceed the number of observations used by SCG and SDG&E by 1 and 14, respectively.

V. METERS, RESIDENTIAL, CORE MARKETS (INCLUDING NGV), GAS PRICE FORECAST, AND CORE BROKERAGE FEE

A. Overview

This chapter presents SCG and SDG&E's customer meter and gas-demand forecasts for 2027–2029. For both utilities, the forecasts for meters utilize econometric models grounded in housing-start projections, historical meter data and temperature-adjusted usage patterns. SCG and SDG&E calibrate the ordinary least squares (OLS) linear econometric models to the most recent actuals, with lagged authorized housing starts driving residential forecasts and economic indicators, price elasticities of gas demand, and equipment efficiency trends shaping non-residential forecasts. The testimony explicitly references the S&P Global February 2024 housing-start forecast[56] for both service territories and applies adjustments to reflect reduced growth in new multifuel homes and California building policies.[57] For weather normalization, SCG and SDG&E use a 20-year average weather design with annual climate-change adjustments, as Section IV previously discussed. The declining HDD trend impacts demand negatively on core residential, commercial and industrial (C&I) customer classes.

The chapter also incorporates updated assumptions for energy efficiency, fuel substitution and natural gas vehicle (NGV) adoption, with SCG and SDG&E both using the CEC's 2023 IEPR Additional Achievable Fuel Substitution Scenario 3 to model electrification impacts.[58] The utilities propose that residential and C&I demand decline modestly for SCG, while SDG&E proposes slight C&I growth tied to employment trends and lower gas-price forecasts.[59] In addition, SCG and SDG&E source updated inputs for the natural gas price forecast from the S&P Global February 2025 North American

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[56] Ex. SCG-Chapter 3, pp. EM-2 and EM-6.

[57] Ex. SCG-Chapter 3, p. EM-2.

[58] Ex. SCG-Chapter 3, footnotes 8 & 9 on p. EM-8 & EM-10, respectively.

[59] Ex. SCG-Chapter 3, pp. EM-8 (Table EM-6), EM-10 (Table EM-9), EM-12 (Table EM-12), EM-13 (Table EM-13) and EM-16 (Tables EM-15 and EM-17).

Natural Gas Long-Term Outlook.[60] The chapter also proposes a core brokerage fee (CBR) of 0.322 cents/therm, increasing the current 0.299 cents/therm fee through escalation.[61] Cal Advocates' chapter workpapers provide the cost allocation of the CBR.[62]

B. SCG and SDG&E Request

Sempra requests approval of its proposal for "the meter forecast, average temperature year, cold temperature year, peak month, and extreme design peak day gas demand forecasts for the years 2027 through 2029… [for] residential, core commercial and industrial (C&I), gas air conditioning, gas engine, and natural gas vehicle (NGV) markets, [and request approval for the] natural gas price forecast, and the core brokerage fee proposal."[63]

Cal Advocates provided recommendations on the average, cold and peak month designs in Section IV. Cal Advocates does not oppose SCG and SDG&E's core commercial and industrial, gas air conditioning, gas engine and NGV demand forecasts and meter proposals. Cal Advocates provides recommendations on SCG and SDG&E's residential meter counts and residential demand forecasts.

1. Residential Meter Count Forecasts

SCG and SDG&E present residential baseline quarterly forecasts for meter growth using econometric models. The residential meter growth models for SCG are broken down into single-family and multi-family models. The master meter SCG customer class forecast is not model driven and declines in part due to the 10-year Mobilehome Park Utility Conversion Program established by the Commission in

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[60] Ex. SCG-Chapter 3, p. EM-18, "The natural gas price forecast used to develop the demand forecasts for SoCalGas and SDG&E in this proceeding is S&P Global Commodity Risk Solution's February 2025 North American Natural Gas Long-Term Outlook."

[61] Ex. SCG-Chapter 3, p. EM-18, Table EM-19.

[62] Attached at the end of Ex. SCG-Chapter 3, Workpapers but labeled "Chapter 11 Workpapers: Core Brokerage" at the bottom of the section pages.

[63] Ex. SCG-Chapter 3, p. EM-1.

D.20-04-004.[64] Single-family meter count forecasts for SCG were derived from economic data, including the quarterly S&P Global February 2024 housing-start historic data term, a set of quarterly lagged (three lagged variables total: one quarter, two quarters and three quarters lagged, respectively) terms for housing starts,[65] a set of dummy variables for specific quarters, two seasonal dummies for fall and spring (excluding winter) and an autoregressive term.[66] Multi-family meter count forecasts for SCG were derived from a different set of quarterly lagged housing starts terms (two quarters, three quarters, four quarters and five quarters, totaling 4 lagged terms), a different set of quarterly dummy variables, no seasonal dummies, and an autoregressive term.[67] For SDG&E, the meter growth model only projects total residential meter counts (not broken down into single-family, multi-family or Master Meter forecasts) and includes the direct housing starts projection, one two-quarter lagged housing starts variable, yet another set of different quarterly dummies, all three seasonal dummies (including winter this time) and an autoregressive term.[68]

The only rationale SCG provided when asked to "provide a detailed explanation of the rationale behind each variable used in the regression equations for SCG and SDG&E"[69] was "SoCalGas and SDG&E selected explanatory forecast variables that

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[64] Decision (D.) 20-04-004 (issued April 16, 2020, in R.18-04-018), which established the ten-year Mobilehome Park Utility Conversion Program (MHP-UCP) running from 2021 through 2030. SCG/SDG&E confirmed that the decline in master meters includes removal of existing meter infrastructure under the Mobilehome Park Utility Conversion Program. See SCG's response to Cal Advocates' data request PUBADV-SCG_SDGE-012-EV, Question 3.

[65] The full dataset used to run the regression uses historical time series data up and through Q4 of 2024. The S&P Global data was from February 2024 and therefore includes forecasted amounts for the 4 quarters of 2024, which was used in the regression.

[66] Ex. SCG-Chapter 3, Excel Workpapers, "Sup_Ch 3 Martinez SCG Meter Forecast WP_2027 CAP.xlsx", sheet "1. SAS model_sf".

[67] Ex. SCG-Chapter 3, Excel Workpapers, "Sup_Ch 3 Martinez SCG Meter Forecast WP_2027 CAP.xlsx", sheet "2. SAS model_mf".

[68] Ex. SCG-Chapter 3, Excel Workpapers, "Sup_Ch 3 Martinez SDGE Meter Forecast WP_2027 CAP.xlsx", sheet "1. SAS model_res".

[69] Cal Advocates' data request PUBADV-SCG_SDGE-012-EV, Question 1(c).

are statistically significant."[70] Not only is this explanation undetailed, it does not justify the inclusion of each variable individually, nor does it provide any sort of economic theory or rationale behind how the models actually explain the existing data (and effectively predicts future meter growth). Reported alternative models or comparisons substantiating the proposed models as a stronger choice for the data were not provided by either utility.

In addition, the models differ substantially: many of the variables that were chosen for each utility are different, and arbitrary terms were put in and left out in both models. For example, SCG provided no justification as to why only the winter season dummy for SCG's single-family model was left out, while all three seasonal dummies were left out of the multi-family model. Similarly, while the single-family model uses housing starts in the current quarter plus lags 1, 2, and 3, the multi-family model skips the current quarter and immediately prior quarter, using only lags 2, 3, 4, and 5. The utilities do not provide any economic theory or basis as to why multifamily construction takes a minimum of six months longer than single-family to translate into gas connections. Lag selection of this kind is typically the output of a stepwise regression that retains whatever specification maximizes in-sample fit, not the product of prior theoretical reasoning.[71] This could signify that the lag structure is overfitting the historical sample, therefore rendering the model unreliable for the 2027–2029 forecast horizon.

[70] SCG's response to Cal Advocates' data request PUBADV-SCG_SDGE-012-EV, Question 1(c).

[71] No narrative in the testimony or workpaper explains why multi-family construction takes a minimum of two additional quarters longer than single-family to produce gas connections, nor why the response peaks at 12 months rather than at the onset of the lag window. The most parsimonious explanation is that lags were selected by iteratively testing candidate specifications for statistical significance to maximize in-sample fit. The standard econometric critique of this practice is that data-driven lag selection inflates apparent significance, produces lag patterns that reflect sample idiosyncrasies rather than economic mechanisms, and yields forecasts that may not generalize out-of-sample. See Frank E. Harrell, Jr., Regression Modeling Strategies (2nd Edition., Springer 2015) at Chapter 4 (cataloguing the hazards of stepwise variable selection, including that "some real explanatory variables . . . may happen to not be statistically significant, while nuisance variables may be coincidentally significant"); Gary Smith & Frank Cordes, "Step away from stepwise," Journal of Big Data (2018) (concluding that "stepwise regression is less effective the larger the number of potential explanatory variables" and that models selected this way "fit the data well in-sample, but do poorly out-of-sample").

In the same vein, neither utility justified its inclusion of the specific quarterly dummies included within each model. The sum dummy quarter variables chosen are the same, but many of the dummies differ for each of the models presented. The only justification for this approach is the supposed significance of each variable, which alone does not justify inclusion (or exclusion) in a forecasting model. Models which are parameterized to maximize p-value significance reporting for coefficients alone do not compensate for other issues, such as model explanatory power and multicollinearity of terms. Other reported SAS outputs further undermine model selections: the models all contain no intercept terms,[72] the Mean Absolute Percentage Error (MAPE) of 26.13% for SCG multi-family and 23.57% for SDG&E residential are significantly high,[73] the ratio of 7.8 observations per parameter for SCG single-family is low,[74] there are opposite sign dummies representing the same quarter[75] and there are large negative

[72] When a regression suppresses the intercept, R^2 is computed as the proportion of variation around zero rather than around the sample mean, which mechanically inflates the reported statistic. The headline total R^2 figures (0.9903 for SF and 0.9613 for MF) are therefore misleading. The more honest measure is typically the Transformed Regression R^2 (adj R^2), which reflects actual model fit after the AR(1) Generalized Least Squares (GLS) transformation that is the operative model: 0.9073 for SF and 0.5859 for MF.

[73] SCG and SDG&E present these models without discussing MAPE or characterizing forecast uncertainty. A MAPE above 10–15% is generally considered poor fit for energy demand forecasting.

[74] The effect of overparameterization is that the model has used a dummy variable to explain away every significant residual rather than identifying the structural cause. SCG's testimony provides no economic explanation for why 1995 Q1, 1996 Q1, 1996 Q2, 2005 Q3, 2015 Q3, or 2024 Q4 were anomalous. It simply flags them as outliers which are statistically significant and moves on. This is curve-fitting, not causal modeling.

[75] In 2003 Q3 (referred to as dum033 in SCG's excel workpaper), the SF model applies a negative dummy of −3,078 (SF connections were anomalously low), while the MF model simultaneously applies a positive dummy of +3,587 (MF connections were anomalously high). These offsetting effects in the same quarter have no economic explanation in the testimony. Housing construction does not typically shift wholesale from SF to MF in a single quarter. Though undetermined, it is plausible these are data artifacts constituting reclassifications, reporting timing differences, or system boundary changes. SCG has not provided any evidence disclosing the root cause of any such changes occurring during this time.

autoregressive coefficients of -0.7429, -0.8691 and -0.7784 for single-family SCG, multi-family SCG and residential SDG&E, respectively.[76]

Importantly, SCG and SDG&E also applied an out-of-model adjustment to the resulting forecasts from the econometric models: 50% to all new homes.[77] The justification given in testimony for SCG is that it "adjusted its residential meter forecast to reflect reduced growth in new multifuel homes."[78] The magnitude of this impact (50%) directly undermines what SDG&E reported to the CPUC: 87.65% of new extension line requests were for all electric buildings in 2023.[79] In 2027, 2028 and 2029, this share will undoubtedly be identical or higher. Krueger Architects, a prominent architectural firm with a large market share for new home construction in Los Angeles, mandated all-electric new construction in April of 2023.[80] Recent CPUC decisions have

[76] A large negative AR(1) in a first-difference model means the model predicts that an unusually high connection quarter will be followed by an unusually low one, oscillating around the mean. While some construction scheduling dynamics could produce this pattern, an AR(1) this large and negative typically signals that the model is absorbing omitted variable dynamics.

[77] Ex. SCG-Chapter 3, Excel Workpapers, "Sup_Ch 3 Martinez SCG Meter Forecast WP_2027 CAP.xlsx" and "Sup_Ch 3 Martinez SDGE Meter Forecast WP_2027 CAP.xlsx", sheet "7. Out-of-model_Active" and "4. Out-of-model_Meters" for SCG and SDG&E, respectively. See the "Out Of Model deduction in new meters" table highlighted in green.

[78] Ex. SCG-Chapter 3, p. EM-2. SDG&E did not provide the same reasoning but followed the same adjustment in Ex. SCG-Chapter 3, Excel Workpapers, "Sup_Ch 3 Martinez SDGE Meter Forecast WP_2027 CAP.xlsx", sheet "4. Out-of-model_Meters" to derive its final active meters forecast. See sheet "7. Out-of-model_Active".

[79] San Diego Gas & Electric Company, Advice Letter (AL) 4440-E-A/3301-G-A, Annual Report on Electric Line Extension Expenditures and New Construction Requests for Calendar Year 2023, filed July 1, 2024, pursuant to Ordering Paragraph 8 of D.23-12-037 (R.19-01-011). The Commission's Energy Division summarized SDG&E's reported data as follows: for the Residential customer class, 87.65% of new construction line extension requests made in 2023 by builders were for all-electric buildings, and 36.26% of new construction projects that were energized in SDG&E's service area were all-electric buildings. *See* CPUC Energy Division, Building Decarbonization, July 1, 2024 entry, available at https://www.cpuc.ca.gov/about-cpuc/divisions/energy-division/building-decarbonization

[80] Los Angeles, Cal., Ordinance No. 187,737 (adopted Dec. 7, 2022), amending the Los Angeles Municipal Code to prohibit combustion equipment, gas piping, and fossil fuel infrastructure in new buildings; requirements effective April 1, 2023 for most new construction and June 1, 2023 for affordable housing projects. *See also* Krueger Architects, *No More Gas — Los Angeles Mandates All Electric Buildings* (Jan. 17, 2023), available at https://kruegerarchitects.com/no-more-gas-all-electric-buildings-in-los-angeles/

removed natural gas line extension subsidies altogether: D.22-09-026 (September 15, 2022, effective July 1, 2023)[81] made California the first state in the nation to eliminate natural gas line extension subsidies, while D.23-12-037 (December 14, 2023, effective July 1, 2024)[82] eliminated electric line extension subsidies for new construction building projects that use natural gas or propane in addition to electricity.

Given the plethora of issues with both utilities' model specifications, Cal Advocates recommends adjustments to the forecasted numbers outside of the models themselves. In determining such adjustments, Cal Advocates utilized what information is known to be true regarding California's electric transition at this time, reasonable fact and formal theory, and further analysis of residential gas customer attrition.

First, Cal Advocates recommends an out-of-model (OOM) adjustment for new all-electric homes at 87.65%, consistent with AL 4440-E-A/3301-G-A submitted with SDG&E on July 1, 2024.[83] SCG and SDG&E use a 50% figure in this CAP testimony with no cited empirical basis. The CPUC's own mandatory reporting shows that in 2023, 87.65% of new residential construction line extension requests in SDG&E's service territory were all-electric.[84] As explained above, the decisions implemented by

[81] Decision (D.) 22-09-026, Phase III *Decision Eliminating Gas Line Extension Allowances, Ten-Year Refundable Payment Option, and Fifty Percent Discount Payment Option Under Gas Line Extension Rules*, issued September 15, 2022, in Order Instituting Rulemaking (R.) 19-01-011. D.22-09-026 eliminated gas line extension allowances, the 10-year refundable payment option, and the 50% discount payment option for all customers in all customer classes, effective for all new gas line extension applications submitted on or after July 1, 2023.

[82] Decision (D.) 23-12-037, *Decision Eliminating Electric Line Extension Subsidies for Mixed-Fuel New Construction and Setting Reporting Requirements*, issued December 14, 2023, in R.19-01-011. D.23-12-037 eliminated electric line extension subsidies for all mixed-fuel new construction — defined as building projects that use natural gas and/or propane in addition to electricity — effective for new applications submitted on or after July 1, 2024. D.23-12-037 further requires that all mixed-fuel new construction projects pay the final actual costs of an electric line extension (rather than only estimated costs) effective January 1, 2025, and established an annual reporting requirement for the three largest electric IOUs beginning May 1, 2024. Electric line extension subsidies for all-electric new construction were expressly retained to continue incentivizing zero-emission construction.

[83] The full report with underlying data by customer class, quarter, and project type is included in Attachment A of AL 4440-E-A/3301-G-A.

[84] The 87.65% figure is drawn from Attachment A of SDG&E AL 4440-E-A/3301-G-A, which reports residential new construction electric line extension requests received from applicant

(continued on next page)

the CPUC will further accelerate fuel switching far above a 50% reduction. The cumulative effect of these two decisions is that, as of July 1, 2024, a builder who connects to gas pays full actual costs for both the gas line and the electric line, while a builder who goes all-electric pays only the electric line cost with the subsidy intact. This structural financial penalty for mixed-fuel construction was fully operative throughout the 2024–2029 planning horizon that defines this CAP proceeding. Cal Advocates' recommendation of 87.65% is directly grounded in observed builder behavior in SDG&E's service territory, and more accurately represents the changing landscape of energy in southern California.

Cal Advocates' second adjustment applies electrification attrition to existing homes. This is the share of homes in SCG and SDG&E's service territory which are connected and active but expected to switch to fully electrified houses before and during the CAP period. This attrition acts on existing stock and is independent of the new-home construction share captured by the OOM adjustment of 50%.

It should be noted that these adjustments do not project household-level electrification behavior. They do not model the number of heat pump installations, nor assume full home electrification of any particular customer. In producing such amounts, Cal Advocates poses the question: given the existing meter stock of approximately 5.74 million SCG residential meters and 886,131 SDG&E residential meters, what is the minimum number of those existing meters that will be permanently removed each quarter because the customer has converted entirely to electric appliances and no longer requires gas service?

To this end, Cal Advocates proposes a linear ramp starting at 1,500 SCG-SF, 800 SCG-MF and 600 SDG&E meters per quarter in 2025 Q1, rising to 2,500 SCG-SF, 1,400 SCG-MF and 1,000 SDG&E meters per quarter respectively in 2029 Q4—annual totals of roughly 9,705 to 15,095 for SCG combined and 2,526 to 3,874 for SDG&E.[85]

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builders in SDG&E's service territory for the period January 1, 2023 through December 31, 2023, disaggregated by customer class and project type (all-electric vs. mixed-fuel).

[85] Cal Advocates' proposed electrification attrition adjustments are documented in caa_meter_forecast_final_SCG.py and caa_sdge_meter_forecast.py, filed as workpapers in this proceeding. The quarterly ramp is implemented in the sf_attrition(), mf_attrition(), and res_attrition() functions in those scripts, respectively.

As a percentage of the existing residential meter stock, these rates are remarkably small: SCG-SF ranges from 0.16% to 0.25% per year; SCG-MF from 0.18% to 0.29%; and SDG&E from 0.29% to 0.44%.[86] Cumulatively through 2029, the total attrition is only 1.08% of SCG's residential stock and 1.81% of SDG&E's stock. These recommendations are not meant to be aggressive projections, but rather a reasonable recognition of an imminent change that a legally mandated, financially incentivized and structurally accelerating electrification transition is already underway in the SCG and SDG&E service territories. Table 8 presents Cal Advocates' recommended electrification attrition amounts per quarter during the CAP period.

Table 8[87]
Electrification Attrition to Existing Housing Stock: Adjustment Amounts

	SCG		SDG&E	
Year	Single-Family	Multi-Family	Total Residential	Total (SCG + SDG&E
2027 Q1	1,921	1,053	768	3,742
2027 Q1	1,974	1,084	789	3,847
2027 Q1	2,026	1,116	811	3,953
2027 Q1	2,079	1,147	832	4,058
2027 Total	8,000	4,400	3,200	15,600
2028 Q1	2,132	1,179	853	4,163

[86] The percentage figures are calculated using 2024 annual average active meter counts as denominators. These figures use the same base that the workpapers used for out-of-model deductions rather than connected meter counts. The 2024 active denominators, taken from Ex. SCG-Chapter 3, Excel Workpapers, "Sup_Ch 3 Martinez SCG Meter Forecast WP_2027 CAP.xlsx" and "Sup_Ch 3 Martinez SDGE Meter Forecast WP_2027 CAP.xlsx", sheet "6. Base_Annual_Active" and "3. Base_Annual" of the respective workpaper Excel files, are: SCG-SF: 3,859,263; SCG-MF: 1,880,496; SDG&E residential: 886,131. The SCG cumulative figure of 1.08% uses total SCG SF+MF active meters (5,739,759) as the denominator, consistent with treating the ramp as acting on the combined residential stock. The SDG&E figure of 1.81% uses the full SDG&E residential active meter base (886,131), consistent with SDG&E's unified residential category. All percentage calculations are reproducible from the configuration parameters and denominator values stated in the testimony workpaper scripts.

[87] Presented are the meters removed per quarter. The Linear ramp of electrification from 2027Q1 to 2029Q4: SCG SF 1,921→2500 per quarter; SCG MF 800→1,400 per quarter; SDG&E 768→1,000 per quarter.

	SCG		SDG&E	
Year	Single-Family	Multi-Family	Total Residential	Total (SCG + SDG&E
2028 Q1	2,184	1,211	874	4,268
2028 Q1	2,237	1,242	895	4,374
2028 Q1	2,289	1,274	916	4,479
2028 Total	8,842	4,905	3,537	17,284
2029 Q1	2,342	1,305	937	4,584
2029 Q1	2,395	1,337	958	4,689
2029 Q1	2,447	1,368	979	4,795
2029 Q1	2,500	1,400	1000	4,900
2029 Total	9,684	5,411	3,874	18,968
CAP Period Total Attrition	26,526	14,716	10,611	51,853

The above data supports the quantitative adjustments recommended by Cal Advocates. For example, the data on heat pumps currently places California on pace to install approximately 80,000 heat pumps per year in existing homes—that is, installations that replace gas appliances in the existing stock rather than going into new construction.[88] SCG and SDG&E together serve roughly 6.6 million of California's

[88] Building Decarbonization Coalition (BDC), *How California Can Unlock Healthier & More Resilient Homes in 2024* (Feb. 12, 2024), available at https://buildingdecarb.org/how-california-can-unlock-healthier-more-resilient-homes-in-2024. The article states that California is on pace to install approximately 80,000 heat pumps per year in existing homes and attributes this figure to a presentation by Heating, Air-conditioning & Refrigeration Distributors International (HARDI) submitted to the California Energy Commission in Docket 22-DECARB-01 on April 6, 2022: Alex Ayers (HARDI), Changing Heat Pump Demand in California, CEC Docket No. 22-DECARB-01, TN 242596 (Apr. 6, 2022), available at https://efiling.energy.ca.gov/GetDocument.aspx?tn=242596&DocumentContentId=76124. The HARDI presentation states that the estimated installed base of heat pumps in California was 1.75 million units as of 2022, with a replacement rate of "greater than 80,000 expected in 2022," with the remaining growth in sales attributable to new construction. Because this figure is an industry estimate from 2022, it is properly characterized in testimony as a current baseline rate rather than a more recent measured figure. Cal Advocates uses this as a conservative floor: IRA

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approximately 14.7 million residential units, which is about 45.5% of the state's residential housing stock.[89] Applying that 45.5% share to the current 80,000-per-year existing-home installation rate implies approximately 36,400 heat pump installations per year in Sempra territories today, before any acceleration from CAHPP, CARB, or SCAQMD mandates.

It should be noted that not every heat pump installation results in a meter disconnection.[90] Conservatively estimating that 20–25% of heat pump installations result in full home electrification and meter removal within the forecast window yields 7,280–9,100-meter disconnections per year in Sempra territory at the current installation rate alone. This is representative of the current conditions floor as of February 2024[91]; by 2027, CARB's zero-NOx water heater standard and SCAQMD Rule 1146.2 accelerate this rate substantially. Cal Advocates estimates the combined effect produces 15,600-meter attrition events per year in that year.

Section 25C credits, CAHPP, CARB appliance standards, and SCAQMD rules enacted since 2022 have all created additional upward pressure on existing-home heat pump installation rates since this estimate was produced.

[89] The approximately 14.7 million figure is drawn from U.S. Census Bureau, 2019–2023 American Community Survey 5-Year Estimates, which reports 14,644,735 total housing units in California (U.S. Census Bureau, American Community Survey, Housing Characteristics, Table B25001, California 2019–2023). The combined SCG and SDG&E residential meter count of approximately 6.6 million refers to active residential gas meters in the two utilities' service territories: SCG reported 5,778,324 active residential meters (single-family, multi-family, and master meter combined) for 2024, per Ex. SCG-Chapter 3, Table EM-3 and excel workpaper "Sup_Ch 3 Martinez SCG Meter Forecast WP_2027 CAP.xlsx", sheet "Base_Annual_Active sheet); SDG&E reported 886,131 residential meters for 2024, per Ex. SCG-Chapter 3, Table EM-3 and excel workpaper "Sup_Ch 3 Martinez SDGE Meter Forecast WP_2027 CAP.xlsx", sheet "3. Base_Annual". The combined total of 6,664,455 represents approximately 45.5% of the ACS 5-year estimates.

[90] A meter is removed only when the customer electrifies all gas appliances and permanently terminates service.

[91] Building Decarbonization Coalition (BDC), How California Can Unlock Healthier & More Resilient Homes in 2024 (Feb. 12, 2024), available at https://buildingdecarb.org/how-california-can-unlock-healthier-more-resilient-homes-in-2024.

Estimated in a different way, the average residential gas water heater lasts 10–15 years[92]; the average gas furnace 15–20 years.[93] With approximately 5.74 million SCG residential meters and average gas water heater replacement cycles of 10–15 years, roughly 380,000–575,000 gas appliance replacement decisions occur per year in SCG's territory alone on the natural replacement schedule.[94] Under Cal Advocates' conservative adjustment estimate of 12,400 gas meter disconnections for SCG in 2027 from the table above, only 2.2% to 3.3% of those natural replacement events would result in full meter disconnection in any single year during the CAP period.[95]

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[92] U.S. Department of Energy (DOE) and industry data indicate that conventional gas tank water heaters have an average lifespan of 8–12 years, with well-maintained units potentially reaching 15 years. See HARDI, Changing Heat Pump Demand in California, CEC Docket No. 22-DECARB-01, TN 242596 (Apr. 6, 2022) (noting the installed base and replacement cycle of gas water heaters in California); see also ENERGY STAR / DOE, Technical Bulletin: Demand Water Heaters (noting conventional storage water heater lifespans in context of replacement planning), available at https://www.energystar.gov/sites/default/files/asset/document/Technical_Bulletin_ENERGY_STAR_Demand_Water_Heaters_508_0.pdf. The 10–15-year range used in testimony reflects the upper band of the consensus lifespan, consistent with well-maintained California units in a mild climate, and is therefore conservative relative to the national average.

[93] DOE rulemaking Technical Support Documents (TSDs) for residential furnace efficiency standards use an assumed average product lifetime of 18 years for gas furnaces; AHRI (Air-Conditioning, Heating, and Refrigeration Institute) and DOE models use 18 years as the standard assumption. See EGIA Contractor University, Average Service Life of Residential HVAC Equipment (2025), available at https://library.mycontractoruniversity.com/wp-content/uploads/2025/10/EGIA-AverageServiceLife.pdf (summarizing DOE/AHRI lifetime assumptions: gas furnace 18 years, central AC 15 years, heat pump 14 years). Major manufacturer guidance is consistent: Lennox, Carrier, and other HVAC manufacturers publish average gas furnace lifespan as 15–20 years. See, e.g., Carrier, How Long Does a Furnace Last, available at https://www.carrier.com/residential/en/us/products/furnaces/how-long-does-a-furnace-last/. The 15–20-year range used in testimony matches the DOE/AHRI consensus.

[94] The derivation calculation is 5,740,000 meters ÷ 10 years = 574,000 (high end) and 5,740,000 meters ÷ 15 years = 383,000 (low end). This is applied prior to any policy mandate that may accelerate the timeline. Under SCAQMD Rule 1146.2 and CARB appliance standards (such as zero NOx standards on residential water heaters beginning in 2027 and residential furnaces in 2029 statewide), those replacement decisions during 2027–2029 will increasingly result in electric substitution rather than gas-for-gas replacement.

[95] Even absent a policy mandate, a portion of natural gas appliance replacements already result in electric substitution rather than like-for-like gas replacement. Statewide, approximately 800,000 residential water heaters are replaced each year in California. See Opinion Dynamics, California Water Heater Market Characterization Study (March. 2024) (prepared for CPUC), available at https://opiniondynamics.com/california-water-heating-market-study/. As of 2021, prior to D.22-09-026 or D.23-12-037, heat pump water heaters represented only approximately

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Furthermore, Sempra's Chapter 3 testimony relies on CEC IEPR fuel substitution projections to estimate declining residential therms.[96] Those CEC projections contain assumptions about gas-to-electric switching in the existing residential building stock. SCG and SDG&E are essentially relying on CEC fuel substitution projections to forecast declining therm sales, but does not apply any sort of meter loss that is directly correlated with this in its models. The utilities cannot imply existing customers are switching away from gas appliances and then file a meter forecast that assumes zero customers complete full electrification and disconnect their meters. The two positions are logically unfound. If customers are reducing therm usage due to fuel switching, some fraction of those customers will eventually complete the transition. Moreover, customers have been switching away from gas appliances for years, and as shown earlier this is expected to accelerate. Cal Advocates' electrification attrition adjustment is the meter-count consequence of the same fuel substitution that Sempra already acknowledges in its volumetric demand forecasts.[97]

Lastly, it is worth mentioning that Cal Advocates does not count heat pump installations that reduce therm usage without resulting in meter disconnection, nor does it project the effect of local reach codes in Los Angeles, Culver City, Pasadena, or other cities within SCG's territory that restrict gas appliances entirely. It also does not include any adjustment for IRA rebates under Home Electrification and Appliance Rebates (HEEHRA)[98] or reflect the effect of rising gas rates that may deter some gas customers

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0.4% of the installed base in California single-family homes. Unsurprisingly, heat pump water heater shipments grew 35% in 2023 alone to approximately 190,000 units statewide. See Opinion Dynamics, TECH Initiative Baseline Market Assessment, Executive Summary, p. 1 (July 2022); California Heat Pump Partnership Blueprint: Scaling California's Heat Pump Market: The Path to Six Million, at p. 16 (Mar. 2025), available at https://heatpumppartnership.org/wp-content/uploads/2025/03/CAHPP-Blueprint-Final.pdf. Even accounting for this growing rate of electric substitution at natural replacement, the volume of full meter disconnections projected under Cal Advocates' conservative estimate remains a small fraction of annual replacement activity.

[96] Ex. SCG-Chapter 3, p. EM-8 and EM-10, footnotes 8 and 9.

[97] Ex. SCG-Chapter 3, pp. EM-8 and EM-10, Tables EM-6 and EM-9

[98] The Home Electrification and Appliance Rebates program (HEEHRA) was established under the federal Inflation Reduction Act of 2022, Pub. L. No. 117-169, § 50122 (codified at 42 U.S.C. § 18795a), and is administered in California by the California Energy Commission (CEC).

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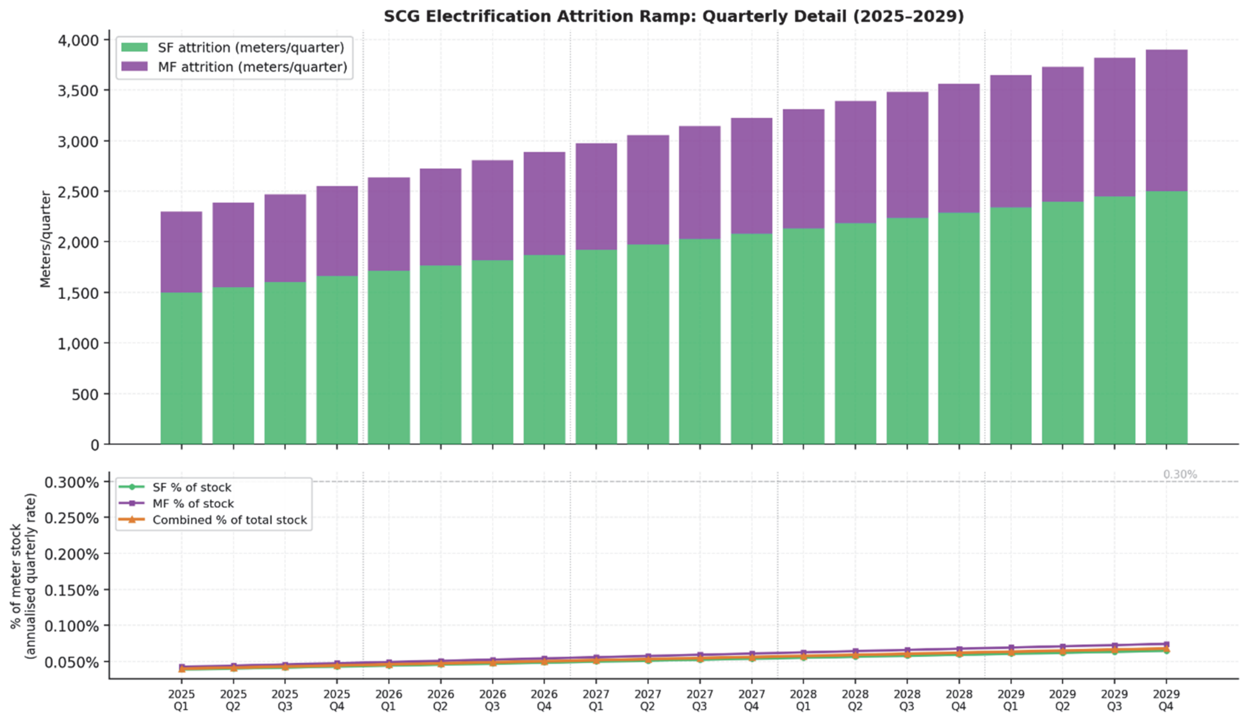
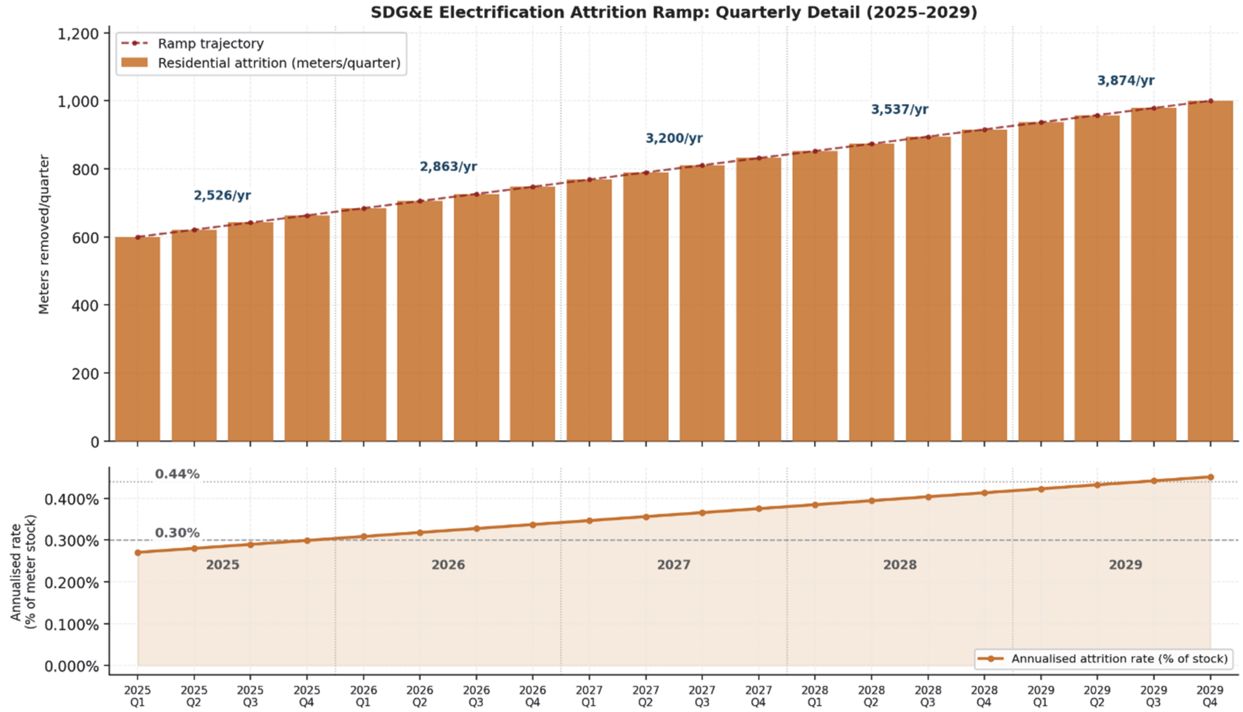
from keeping their gas connection. Every one of these omitted factors would push the actual attrition rate higher than Cal Advocates' recommendation. The adjustment as filed should be considered a conservative estimate. Figures 7 and 8 show the electrification attrition ramp up during the CAP period.

Figure 7
Cal Advocates Proposed SCG Electrification Attrition to Existing Stock



California received a total award of $290 million in HEEHRA funding from the U.S. Department of Energy. Phase I, funded at approximately $96 million and launched in October 2024 through TECH Clean California, provides rebates of up to $8,000 for income-eligible single-family households (under 80% area median income) and up to $4,000 for moderate-income households (80–150% AMI) for the installation of a heat pump HVAC system, as well as rebates of $1,200–$1,750 per unit for multifamily heat pump water heaters. As of February 24, 2026, Phase I single-family rebates were fully reserved statewide; Phase II program design, which will use the remaining $194 million through a retailer point-of-sale rebate structure, was under development as of the date of this filing. See California Energy Commission, Inflation Reduction Act Residential Energy Rebate Programs, available at Inflation Reduction Act Residential Energy Rebate Programs | California Energy Commission.

Figure 8
Cal Advocates' Proposed SDG&E Electrification Attrition to Existing Stock



2. Residential Demand Forecasts

The residential demand forecasts presented by SCG and SDG&E utilize Navigator™ Energy and Emissions Simulation Suite.[99] Sempra's Chapter 3 workpapers describe Navigator as a bottom-up end-use simulation platform designed for integrated resource planning, decarbonization pathway analysis, fuel switching modeling, and policy impact analysis. SCG's own workpapers describe Navigator as capable of modeling fuel switching in response to price and policy signals, and as incorporating Share Solver and Fraction Solver (two functions within the platform) specifically designed to model transitions between fuels over time.[100]

The residential demand forecasts for SCG are 201,290 MDth, 197,785 MDth and 195,501 MDth for 2027, 2028 and 2029 1-in-2 average year forecasts, respectively and

[99] Ex. SCG-Chapter 3, Workpapers, "Navigator Specification Document".
[100] Id.

218,086, 214,611 and 212,362 MDth for 2027, 2028 and 2029 1-in-35 cold year forecasts, respectively.[101] The corresponding SDG&E residential demand forecasts are 24,114 MDth, 23,666 MDth and 23,351 MDth for 2027, 2028 and 2029 1-in-2 average year forecasts, respectively, and 26,064, 25,621 and 25,312 for 2027, 2028 and 2029 1-in-35 cold year forecasts, respectively.[102]

Cal Advocates takes strong opposition to a significant share of aspects in SCG and SDG&E's residential demand forecasts.

a) Navigator Output

Upon reviewing SCG's data request, Cal Advocates noticed that the Navigator model projects residential gas demand before any out-of-model (OOM) adjustments[103] as such: 213,132 MDth, 213,518 MDth and 213,961 MDth for 2027, 2028 and 2029, respectively.[104] SCG's Navigator model projects residential gas demand growth of approximately 829 MDth over the two-year period. Importantly, every MDth of demand decline in SCG's final residential forecast is produced not by the Navigator model, but by three additive out-of-model adjustments: a climate change adjustment, an energy efficiency adjustment, and an Additional Achievable Fuel Substitution (AAFS) adjustment.[105] These three adjustments total -11,842 MDth in 2027.[106] Without them, SCG's filed forecast would show rising residential gas demand through 2029. The Navigator model itself contributes nothing to the demand decline over the forecast period.

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[101] Ex. SCG-Chapter 3, p. EM-8, Table EM-6.

[102] Ex. SCG-Chapter 3, p. EM-10, Table EM-9.

[103] SCG's response to Data Request PubAdv-SCG_SDGE-019-ST, Question 1 (Exhibit PubAdv-SCG_SDGE-019-ST-01_a_c.xlsx).

[104] Id. see attachment excel file.

[105] Ex. SCG-Chapter 3, Workpapers, Table Res-5 (p. 5).

[106] Id.

This model is problematic for two reasons. First, the core backbone of the model's parameters—which include the saturation rates,[107] fuel market shares,[108] and Unit Energy Consumption values[109]—are poorly calibrated to California's actual energy transition, resulting in a baseline result that contradicts observable market trends. The model incorrectly projects residential gas demand growing in California from 2027 to 2029 during a period when heat pump adoption is accelerating, local gas bans are proliferating, and the 2022 Title 24 building standards are taking effect. Hence, the model alone fails to function as a reliable forecasting tool.

The second reason is that the way in which SCG and SDG&E utilize Navigator is not fully dynamic.[110] For example, take the saturation values tables provided in SCG and SDG&E's workpapers:[111] for the dominant residential end uses—space heating, water heating, and cooking—the saturation values are held completely constant at their 2024 levels through 2031 for every segment and vintage. SCG and SDG&E holding all saturation rates constant over time is problematic. A saturation rate of 1.00 means 100 percent of homes in that segment have a gas appliance for that end use. This is held constant at 1.00 through 2031 (both space heating and water heating) for every type of household (single-family, multi-family, master-meter, etc.), thus assuming zero

[107] Saturation, as defined in Ex. SCG-Chapter 3, Workpapers, "Navigator Specification Document", is "the extent to which an end-use is present in a region and segment" (i.e., the fraction of dwelling units that possess a given gas appliance).

[108] Fuel share, as defined in Ex. SCG-Chapter 3, Workpapers, "Navigator Specification Document", is "the percentage of the energy end-use that is supplied by each fuel."

[109] Unit Energy Consumption (UEC), as defined in Ex. SCG-Chapter 3, Workpapers, "Navigator Specification Document", is "the amount of energy used by each end-use per unit," expressed in therms per appliance per year.

[110] In the Functional Specification Document, Navigator is described as a platform designed with "fuel switching modeling" capabilities that incorporates a Share Solver and Fraction Solver specifically to model transitions between fuels over time in response to price and policy signals. SCG and SDG&E did not activate the Share or Fraction Solvers: the scenario input files provided to Navigator hold all fuel shares and saturation rates static, which disables the model's fuel-switching functions.

[111] Ex. SCG-Chapter 3, Workpapers, SCG Table Res-9 (pp. 9-10 for existing customers). A model that holds space heating saturation at 1.00 through 2031 is asserting that in 2031, 100% of existing single-family homes in SCG's service territory still have a gas furnace—the same share as in 2024.

appliance turnover toward electric alternatives for existing residential customers throughout the forecast period.[112]

Similarly to the unchanging saturation share values, the gas market fuel share values also display no dynamic changes during the forecast period. Like the saturation values, for each residential segment, the values from 2024 remain entirely static throughout the forecast horizon. As an example, the fuel share for space heating in new single-family homes (SF_vint_NEW) remains at 0.99—99 percent gas—from 2024 through 2031.[113] The fuel share for water heating in the same segment remains at 0.96 throughout.[114] The same occurs for SF_vint_OLD: 0.98 and unchanging for space heating and 0.97 and unchanging for water heating.[115] The pattern applies to every single vintage segment. Even more significantly, the fuel shares for new customers are essentially identical to those for existing customers, meaning the model assumes that homes built after 2020 will adopt gas appliances at the same rate as the pre-2020 housing stock.[116] These assumptions are directly contradicted by Title 24

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[112] See SCG's response to Cal Advocates Data Request PUBADV-SCG_SDGE-019-ST Partial No. 2, Question 5 (c) and 13 (c).

[113] Ex. SCG-Chapter 3, Workpapers, SCG Table Res-11 (pp. 13-14 for existing customers). The SF_vint_NEW water heating fuel share value of 0.96—meaning 96% gas—is identical in every year from 2024 through 2031. The 2022 Title 24 Standards explicitly incentivize heat pump water heaters in new single-family construction as the preferred compliance pathway; a fuel share of 0.96 for new-vintage homes is inconsistent with that regulatory environment and the builder behavior documented in SDG&E's AL 4440-E-A/3301-G-A.

[114] Id.

[115] Id. All other fuel shares remain identical from 2024-2031.

[116] Ex. SCG-Chapter 3, Workpapers, SCG Table Res-12 (pp. 15-16 for new customers). Comparing Table Res-11 (existing customers) and Table Res-12 (new customers) for the SF segments confirms that the fuel shares are identical between vintages for both space heating and water heating: SF_vint_NEW existing = 0.99 space / 0.96 water; SF_vint_NEW new = 0.99 space / 0.96 water; SF_vint_old existing = 0.98 space / 0.97 water; SF_vint_old new = 0.98 space / 0.97 water. The model applies the same gas fuel shares to homes permitted after January 1, 2023 (when the 2022 Title 24 Standards became operative) as it applies to homes built under pre-2020 codes. The 2022 Standards were specifically designed to make heat pump technology the default compliance pathway for new residential construction. See California Energy Commission, 2022 Building Energy Efficiency Standards, effective January 1, 2023, available at https://www.energy.ca.gov/programs-and-topics/programs/building-energy-efficiency-standards.

2022 Standards and the wave of local electrification ordinances affecting new construction in SCG and SDG&E's service territory.[117]

b) **OOM Adjustments**

1. Circular Justification of OOM Adjustments

Regarding OOM adjustments, SCG and SDG&E apply three adjustments outside the Navigator model to arrive at their final residential demand forecasts: (1) the climate change adjustment reflecting declining heating degree days from chapter 2; (2) an energy efficiency adjustment based on CPUC-mandated EE program savings targets; and (3) an AAFS adjustment based on the CEC's 2023 IEPR Additional Achievable Fuel Substitution Scenario 3 Programmatic.[118] The workpapers provided in response to Cal Advocates' data request reveal the magnitude of these adjustments relative to the Navigator base output.[119] In its response, SCG stated: "Using an out-of-model adjustment approach resulted in the same result as applying the adjustments in Navigator as both approaches used the same annual figures, reducing a step."[120] Cal Advocates identifies this justification as circular and essentially non-responsive: as

[117] *See* California Energy Commission, *2022 Building Energy Efficiency Standards* (Title 24, Part 6), effective January 1, 2023; Los Angeles, Cal., Ordinance No. 187,737 (adopted Dec. 7, 2022, eff. Apr. 1, 2023); D.22-09-026 and D.23-12-037. The combined effect of these measures is that new construction permitted after January 1, 2023 in SCG's and SDG&E's service territories faces regulatory, financial, and technical incentives that strongly favor all-electric construction.

[118] Ex. SCG-Chapter 3, Workpapers, Table Res-5 (p. 5) for both SDG&E and SCG; Ex. SCG-Chapter 3, pp. EM-8 and EM-10 (footnotes 8 and 9).

[119] SCG's Response to Cal Advocates' Data Request PUBADV-SCG_SDGE-019-ST, Questions 1(a) and 9 (a), attachments "PubAdv-SCG_SDGE-019-ST-01_a_c.xlsx" and "PubAdv-SCG_SDGE-019-ST-09_a_c.xlsx". The attachment provided the Navigator model base output prior to any out-of-model adjustments for each forecast year, which Cal Advocates compared against the final filed residential demand figures in Table EM-6 of Ex. SCG-Chapter 3 to quantify the full magnitude of the three OOM adjustments. The difference between the Navigator pre-OOM output and the filed average-year forecast equals the sum of the three OOM adjustments in Table Res-5 in each year, confirming that the two sources are internally consistent: Navigator pre-OOM of 213,132 MDth in 2027, less total OOM of −11,842 MDth, equals the filed average-year forecast of 201,290 MDth.

[120] SCG's Response to Cal Advocates' Data Request PUBADV-SCG_SDGE-019-ST, Questions 1(b) and 9(b).

described in the Navigator Functional Specification Document,[121] when the modeler simulates fuel substitution through Navigator's Share Solver, it interacts dynamically with saturation rates, fuel shares, and UEC values. This function enables the model to capture cascading effects such as households that switch to electric space heating also tend to replace gas water heaters, or the impact of electrification on peak day demand calculations. It should be clarified that the two approaches that SCG and SDG&E mention only produce the same result because the model's internal parameters were held frozen, not as a validation of the OOM approach. Applying fuel substitution OOM reductions essentially eliminates all interaction effects.

2. Failure to Capture Feedback Effects

The OOM approach cannot capture the feedback effects[122] on the cost structure faced by remaining residential gas ratepayers. It is a well understood consequence of utility ratemaking that, when customers electrify and exit the gas system, the fixed costs of the gas distribution network must be recovered from a shrinking customer base, resulting in higher per-unit costs for those who remain.[123] As run by SCG and SDG&E, Navigator's customer counts, saturation rates, and fuel shares are held static. Therefore, the model cannot represent this cost-allocation feedback: it simultaneously assumes customers leave (via the OOM subtraction) while treating the remaining customer base as unchanged. It becomes impossible to properly evaluate cost allocation across customer classes based on a forecast that is internally inconsistent on this fundamental point.

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[121] Ex. SCG-Chapter 3, Workpapers, "Functional Specification Document".

[122] Think of this as: what will happen to the model's price elasticity, customer counts, or Unit Energy Consumption (UEC) trajectories once customers leave the gas distribution network and full electrify? The "feedback effects", as used here, can be thought of as the effects of electrification on model inputs such as price elasticity, customer counts, UEC, etc.

[123] This dynamic is commonly referred to as the "utility death-spiral risk."

3. Inaccuracies in AAFS and EE Adjustments

In addition, the OOM adjustment amounts themselves are questionable at best. In the AAFS sheet provided by SCG and SDG&E in its data request response, Cal Advocates discovered that SCG zeroed out the CEC Scenario 3 data point for 2024 in its workpaper.[124] This restarts the cumulative adjustment from zero in 2025 and excludes the 17.16 MMths of savings in 2024 for SCG and 1.45 MMths of saving for SDG&E, reported by the CEC. The effect of this is that the 2024 Navigator base output of 215,522 MDth is used as the starting point for the forecast without SCG and SDG&E deducting the fuel substitution that occurred in 2024, which inflates the base year. Navigator calibrates to the base year value, so the entire forward forecast remains inflated since SCG and SDG&E did not apply 2024 electrification savings to Navigator.

Additionally, the EE core residential annual savings projected by SCG decline in every single year from 2024 through 2031—from 3,016 MDth in 2024 to 1,362 MDth in 2031 (a 55% reduction).[125] SDG&E shows similar declines in all years except 2028, where a one-year uptick occurs because the CPUC-mandated EE program goal rises in that year before resuming its decline.[126] Table 9 presents the EE savings for core residential.

[124] SCG's Response to Cal Advocates' Data Request PUBADV-SCG_SDGE-019-ST, Questions 1(a) and 9 (a), attachments "PubAdv-SCG_SDGE-019-ST-01_a_c.xlsx" and "PubAdv-SCG_SDGE-019-ST-09_a_c.xlsx". The CEC Scenario 3 data, as provided in those files, reports residential fuel substitution savings of 17.158 MMths for SCG and 1.446 MMths for SDG&E in 2024. Both workbooks contain an explicit "Zero Out 2024" section on sheet "AAFS". The effect is that the Navigator model's 2024 base output of 215,522 MDth (drawn from Table Res-1 of Ex. SCG-Chapter 3, Workpapers) is used as the forecast starting point without any deduction for the 17.158 MMths of fuel substitution the CEC reports actually occurred in SCG's service territory in 2024 (and 1,446 MMths for SDG&E in 2024). Because Navigator calibrates its forward simulation to the base year value, this omission persists as a structural upward bias across every forecast year of gas usage.

[125] SCG's Response to Cal Advocates' Data Request PUBADV-SCG_SDGE-019-ST, Question 1(a), attachment "PubAdv-SCG_SDGE-019-ST-01_a_c.xlsx", sheet "EE", row 21 in "Annual Net Savings".

[126] SCG's Response to Cal Advocates' Data Request PUBADV-SCG_SDGE-019-ST, Question 9(a), attachment "PubAdv-SCG_SDGE-019-ST-09_a_c.xlsx", sheet "EE", row 21 in "Annual Net Savings".

Table 9
Core Residential Energy Efficiency Savings (MDth's)

	SCG	**SDG&E**
2025	2,199	364
2026	1,697	286
2027	1,685	283
2028	1,587	306
2029	1,483	296
% Decline from 2025 to 2029	32.6%	26.9%

Two problems exist with SCG and SDG&E's project core residential EE savings. The first is the lack of verifiable documentation provided by SCG and SDG&E on their EE program savings and forecasted projections.[127] SCG, which reports 52.3 million therms of energy saved in 2024,[128] has demonstrated in the past to produce EE savings well above the CPUC target of 36.4 million therms.[129] SDG&E similarly also

[127] SCG's Response to Cal Advocates' Data Request PUBADV-SCG_SDGE-019-ST, Questions 1 (a-c) and 9(a-c), attachments ""PubAdv-SCG_SDGE-019-ST-01_a_c.xlsx" and "PubAdv-SCG_SDGE-019-ST-09_a_c.xlsx", sheet "EE". Neither response included supporting methodology documentation, program-level savings estimates, participation rate projections or cost-effectiveness analyses underlying the projected EE savings figures. When Cal Advocates requested that SCG and SDG&E "provide all calculations, data sources, and assumptions" for the EE adjustment specifically, the response provided only the spreadsheet, which contains no citations to CPUC program evaluations, third-party measurement and verification reports or any other primary source.

[128] See "PubAdv-SCG_SDGE-019-ST-09_a_c.xlsx", sheet "EE". The precise 2024 total is 52,259,590 therms, as reported in the "SoCalGas EE Program TOTAL (Recorded)" row of the EE sheet in Exhibit PubAdv-SCG_SDGE-019-ST-01_a_c.xlsx. This figure is independently confirmed by SCG's own public press release, issued July 30, 2025. See *SoCalGas' Energy Efficiency Programs Save Customers More Than $95 Million in 2024* (July 30, 2025), available at SoCalGas' Energy Efficiency Programs Save Customers More Than $95 Million in 2024, confirming savings of more than 50 million therms.

[129] The CPUC-mandated EE program goal for SCG in 2024 was 36,400,000 therms, as reported in the "PUC Goal" row of the "EE" sheet in "PubAdv-SCG_SDGE-019-ST-01_a_c.xlsx". SCG's 2024 recorded savings of 52,259,590 therms represent 144% of that target, or 15,859,590 therms above the goal, as shown in the "Difference" row of the same sheet. For reference, SCG's 2023 recorded savings were 46,033,312 therms against a 2023 PUC goal of 43,000,000 therms (107% of goal).

reported in their data request response savings at 156% of the CPUC target in 2023.[130] The projections presented by both utilities in their response to Cal Advocates' data request now project only enough EE savings to meet the minimum CPUC goal.[131] This is driven in large part by the steep core residential EE savings projection declines, which are not substantiated in light of any new evidence supplied by either utility.[132] Secondly, SCG's own Energy Efficiency Business Plan for 2024–2027, filed with the CPUC, projected savings of nearly $630 million in customer benefits over that four-year period, reflecting an expanding portfolio of over 40 customer-facing programs.[133] These figures seem to be fundamentally at odds with a forecast that projects core residential EE savings declining by more than 32% from 2025 to 2029 for SCG. SCG and SDG&E produced no methodology or source documentation for the EE OOM adjustment when both utilities were asked to "provide all calculations, data sources, and assumptions",[134] so Cal Advocates cannot verify the basis for either the declining trend or the magnitude of the EE adjustments.

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[130] SDG&E's 2023 recorded EE savings were 6,242,243 therms against a 2023 CPUC-mandated goal of 4,000,000 therms, as shown in the "SDGE EE Program TOTAL" and "PUC Goal" rows of the "EE" sheet in "PubAdv-SCG_SDGE-019-ST-09_a_c.xlsx". This represents 156% of the mandated target, or 2,242,243 therms above goal. The 2024 SDG&E recorded total is not populated in the data request response.

[131] In "PubAdv-SCG_SDGE-019-ST-01_a_c.xlsx" and "PubAdv-SCG_SDGE-019-ST-09_a_c.xlsx" on sheet "EE", the "PUC Goal" row matches the "Total" row in the "Annual Net Savings" table.

[132] No program evaluation, measurement and verification report, participation rate projection, market assessment or other analytical documentation was provided in response to Cal Advocates' Data Request PUBADV-SCG_SDGE-019-ST, Questions 1 (a-c) and 9 (a-c) (or in the attachments to this question) to substantiate core residential savings changes. For example, there is no substantiation as to why the core residential sector's contribution to total EE savings should remain fixed at its 2024 share (57.8%) for SCG and not for SDG&E, or why the absolute level of residential savings should fall by 32.5% between 2025 and 2029 for SCG and by 18.8% for SDG&E.

[133] See SCG, Customer-Centric Energy Efficiency Proposal Filed with CPUC (Mar. 7, 2022), available at https://www.socalgas.com/newsroom/stories/customer-centric-energy-efficiency-proposal-filed-with-cpuc. The Business Plan was filed on February 15, 2022 in A.22-02-005 and approved by the CPUC in D.23-06-055.

[134] SCG's response to Cal Advocates' Data Request PUBADV-SCG_SDGE-019-ST, Questions 1 (a) and 9 (a).

c) Price Elasticity Models

SCG and SDG&E present their price elasticity models in response to Cal Advocates' data request.[135] The price elasticity of demand measures the responsiveness of customers' natural gas consumption to changes in gas prices. This is a key input for the utilities' Unit Energy Consumption (UEC) forecasts. Cal Advocates discovered four key issues upon reviewing the utilities' responses.

1. Model Specification Misrepresentation

First, the coefficient on the price variable does not represent a conventional, unit-free price elasticity.[136] SCG and SDG&E use a regression coefficient from a regression of gas consumption on a set of independent variables.[137] The coefficient on the variable of interest is a scaled semi-elasticity: the change in therms per unit change in scaled price. Converting it to a conventional elasticity requires multiplying by the ratio of average usage to average UEC for each segment. These are quantities that SCG and SDG&E have not disclosed in any filed document.[138] Without these base values, the coefficient cannot be compared to published price elasticity literature, cannot be compared across segments or between utilities and cannot be verified as a reasonable proxy for the effect of gas prices on residential consumption.[139]

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[135] SCG's response to Cal Advocates' Data Request PUBADV-SCG_SDGE-019-ST, Questions 2(e) and 10(e), attachments "PubAdv-SCG_SDGE-019-ST-2_e" and "PubAdv-SCG_SDGE-019-ST-10_e.xlsx".

[136] SCG's response to Cal Advocates' Data Request PUBADV-SCG_SDGE-019-ST, Questions 2(e) and 10(e), attachments "PubAdv-SCG_SDGE-019-ST-2_e" and "PubAdv-SCG_SDGE-019-ST-10_e.xlsx". The independent variable used to capture price effects for each customer segment model is labeled: "Wacog * (avg use / avg wacog)". Wacog is the weighted average cost of gas.

[137] Id.

[138] This is shown in the mechanical structure of the variable used to determine price elasticity: Wacog * (avg use / avg wacog) = avg use × (Wacog / avg Wacog). Avg wacog and avg usage represent unspecified historical averages.

[139] See Cal Advocates attachment XX. (I have the attachment in its own file)

2. Serial Autocorrelation and Omitted Variables

Second, unaddressed serial autocorrelation inflates the reported precision of the elasticity estimates, which may signal an omission of important demand drivers. Tables 10 and 11 show Durbin-Watson statistics SCG and SDG&E reported,[140] respectively, which are key measurements of serial autocorrelation.

Table 10
SCG Price Elasticity Regression Autocorrelation Table

Segment	Durbin-Watson	1st Order Autocorrelation	Level of Autocorrelation
Single-Family (SF)	1.405	0.283	Moderate
Small Multi-Family (MF2)	1.398	0.296	Moderate
Large Multi-Family (MF3)	1.173	0.405	Severe
Master-Meter (MM)	1.299	0.347	Severe
Sub-meter (SM	1.699	0.143	Low

Table 11
SDG&E Price Elasticity Regression Autocorrelation Table

Segment	Durbin-Watson	1st Order Autocorrelation	Level of Autocorrelation
Single-Family (SF)	1.569	0.182	Moderate
Multi-family (MF)	1.968	-0.004	None
Master Meter (MM)	1.681	0.160	Moderate
Sub-meter (SM)	1.154	0.423	Severe

[140] Id.

As shown above, multiple models include positive serial autocorrelation, indicating that the reported standard errors of coefficients are inflated. This could signal that the price elasticity coefficients which are currently statistically significant may not actually be if serial autocorrelation is corrected. Positive autocorrelation in a demand model estimated on time-series data additionally indicates that the model is missing explanatory variables, which may also be serially correlated over time. Such variables might include electrification adoption, appliance stock turnover or building efficiency improvements. These are examples of slowly evolving structural trends that, if omitted from the model, would leave positive autocorrelation in the residuals. This undermines the price elasticity coefficient by enabling it to pick up some of the structural decline effects attributed to electrification and efficiency.

3. Statistical Insignificance in SDG&E Models

Cal Advocates' third finding shows that even with the presence of serial autocorrelation, two of SDG&E's four reported price elasticity coefficients are not significant at all for master meter and sub-meter customer segments.[141] Essentially, SDG&E failed to capture an elasticity from its models, but nonetheless incorporated these elasticities as the sole driver of UEC change in its forecast. SDG&E applied them to project how master meter and sub-meter customers will respond to gas price changes through 2029.[142]

4. Inconsistency with Academic Literature

Finally, the elasticity estimates themselves are inconsistent with published literature and trend far too small for application to a multi-year forecast horizon. Referencing SCG's estimates, which range from -0.019 to -0.059, they are at the very

[141] Id., sheet "SDGE Price Model Results". The MM and SM price coefficients fail all significance thresholds by wide margins: the MM t-statistic is 42% below the 10% threshold and the SM t-statistic is 25% below it.

[142] SCG's response to Cal Advocates' Data Request PUBADV-SCG_SDGE-019-ST, Questions 7(a) and 15(a), attachments "PubAdv-SCG_SDGE-019-ST-07.xlsx" and "PubAdv-SCG_SDGE-019-ST-15.xlsx", sheet "Usage Change Lookup table".

low end of estimates found in published academic literature reports for residential natural gas demand. Such estimates of long-run residential gas price elasticity in the United States typically range from approximately -0.1 to -0.5.[143] Short-run elasticities are smaller, typically -0.05 to -0.2.[144] SCG's estimates fall below even the short-run range for most segments.[145] This fact directly implicates the UEC forecast which relies on the price elasticity estimates. If SCG uses short-run or below-short-run elasticities to project how usage per appliance will change over a multi-year forecast horizon, it systematically underestimates the price-induced demand reduction. This fact is particularly important given that the real gas rate forecast shows a 36% increase from

[143] The range of approximately −0.10 to −0.50 for long-run own-price elasticity of residential natural gas demand in the United States is well-established across multiple decades of empirical literature: Raymond Li, Chi-Keung Woo, Asher Tishler & Jay Zarnikau, Price Responsiveness of Residential Demand for Natural Gas in the United States, 15 Energies 4231 (2022) (long-run estimates of −0.323 to −0.796 using monthly panel data for the lower 48 states, 1990–2019); Anna Alberini, Will Gans & Daniel Velez-Lopez, Residential Consumption of Gas and Electricity in the U.S.: The Role of Prices and Income, FEEM Working Paper No. 1.2011 (2011) (reporting own-price elasticity of gas demand of −0.693 to −0.566 using household-level panel data across 50 U.S. metropolitan areas, 1997–2007); Paul J. Burke & Hewen Yang, The Price and Income Elasticities of Natural Gas Demand: International Evidence, 59 Energy Econ. 466 (2016) (long-run estimates of −0.50 to −0.68 across 44 countries); Xavier Labandeira, José M. Labeaga & Xiral López-Otero, A Meta-Analysis on the Price Elasticity of Energy Demand, 102 Energy Policy 549 (2017) (average long-run elasticity of −0.68 across other published studies). The long-run range of −0.10 to −0.50 used here is conservative relative to literature.

[144] Short-run residential natural gas price elasticities are generally found to be smaller in magnitude than long-run estimates, reflecting the limited ability of customers to adjust appliance stocks within a single billing cycle. The range of −0.05 to −0.20 is consistent with published estimates: See Labandeira, Labeaga & López-Otero (2017, meta-analysis mean short-run natural gas elasticity of −0.18); Paul J. Auffhammer & Edward Rubin, NBER Working Paper No. 24295 (2018, estimating the elasticity of demand for residential natural gas at between −0.23 and −0.17); Li et al. (2022, short-run estimates of −0.238 to −0.555). The lower bound of −0.05 reflects the most inelastic end of published U.S. residential estimates; several studies find estimates below −0.10 for short-run responses, usually in mild-climate service territories where space heating needs are less acute. See Rehdanz (2007) and Metcalf & Hassett (1999), as surveyed in Auffhammer & Rubin (2018) (identifying nine U.S., U.K., and Germany micro-data studies with elasticities ranging from −0.08 to −0.71).

[145] SCG's response to Cal Advocates' Data Request PubAdv-SCG_SDGE-019-ST, Questions 2(e) and 10(e), attachments "PubAdv-SCG_SDGE-019-ST-02_e.xlsx" and "PubAdv-SCG_SDGE-019-ST-10_e.xlsx". 3 of the 5 measured coefficients in SCG's price elasticity models fall report below -0.05, while the reported Single-Family elasticity of -0.058 is at the very lowest end of published short (not long) run elasticities. SDG&E's reported coefficients are more reasonable, except for Master-Meter (-0.033). The significant difference in Single-Family reported elasticities between SCG and SDG&E of 0.068 is not explained in the workpapers (-0.0587 for SCG and -0.126 for SDG&E).

2024 to 2027.[146] A short-run elasticity is appropriate for estimating how customers adjust their usage in the next billing cycle; it is not appropriate for projecting how they will respond to sustained price increases over a three-year planning horizon by replacing appliances. It is also left unexplained why SDG&E's single-family elasticity of -0.126 is notably larger in magnitude than any of SCG's estimates and more than double SCG's single-family estimate of -0.059. There is no reasonable justification why two adjacent service territories using the same modeling framework and serving similar geographic regions would produce elasticities that differ by a factor of 2.1.

d) Unit Energy Consumption (UEC)

UEC represents the average amount of natural gas customers consume per appliance per customer per year for each end use, including space heating, water heating, cooking, clothes drying and others. The UEC is a foundational input to the Navigator model's demand forecast. In response to Cal Advocates' data request, SCG and SDG&E produced workpapers detailing how it calibrated base year UEC values and how UEC values were projected across the 2027-2029 CAP period.[147]

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[146] The 36% figure refers to the real (CPI-deflated) all-in residential gas rate, as reported in SCG’s Response to Cal Advocates' Data Request PubAdv-SCG_SDGE-019-ST, Question 8, attachment “PubAdv-SCG_SDGE-019-ST-08.xlsx”, sheet "Q8". The workbook constructs the nominal all-in rate for each forecast year by summing: (1) transportation class average, drawn from the CAP rate forecast; (2) procurement rate, drawn from S&P Global's WACOG forecast; and (3) Pipeline, Procurement and Pipeline Storage (PPPS) charge. The resulting nominal rate is then deflated by the S&P Global All-Urban CPI index (2024 = 1.00), sourced from S&P Global Market Intelligence (created March 10, 2025), to produce the real rate series used in the UEC regression. The resulting values are: 2024: $1.6938/therm; 2025: $2.0135; 2026: $2.2280; 2027: $2.2981; 2028: $2.3013; 2029: $2.2961 (all in real 2024 dollars). The increase from 2024 to 2027 is 35.7%, which rounds to the 36% cited in the testimony body. The nominal price rises 45.3% over the same period, meaning a substantial portion of the real price increase is absorbed by general inflation. Transportation charges constitute 70.8% of the 2024 total rate and 68.2% of the 2027 rate. Procurement only constitutes 20.8% of the total 2024 rate 28% of the 2027 rate. Applying a price elasticity coefficient to a rate that is dominated by regulated delivery charges conflates the customer's response to commodity price signals with their response to delivery tariffs, which are not avoidable through behavioral or appliance adjustments. It would make more sense here to apply the price elasticity to the commodity procurement component only.

[147] SCG’s Response to Cal Advocates’ Data Request PubAdv-SCG_SDGE-019-ST, Questions 7 and 15, attachments “PubAdv-SCG_SDGE-019-ST-07.xlsx” and “PubAdv-SCG_SDGE-019-ST-15.xlsx”.

Cal Advocates' review of these workpapers found that a single mechanical equation reduces the UEC forecast for both utilities. The adjustment to UEC each year is solely a function of gas price changes and the price elasticity coefficients examined in the preceding section.[148] This means every deficiency identified in the price elasticity models carries forward directly into the UEC forecast. Notwithstanding the price elasticity issues carrying over, the gas price used to determine future UEC values is its own overarching issue, which bleeds into other issues detected within the workpapers. Beyond the inherited problem, the UEC workpapers reveal two additional independent deficiencies: a calibration methodology that cannot validate individual end uses and a forecast that projects increasing per-appliance gas consumption in 2029. This projection results from a complete absence of forward-looking adjustments for appliance efficiency improvements, equipment turnover, or building code standards. Cal Advocates demonstrates that these issues systematically bias the demand forecast upward. Cal Advocates discusses the remaining issues in greater detail below.

1. Calibration Methodology Deficiencies

First, SCG and SDG&E present calibration sheets, which compare the 2024 California Gas Report (CGR 2024) initial UEC inputs against the weather-normalized actual consumption to derive a calibration factor.[149] The calibration process works as follows: SCG and SDG&E first run Navigator with CGR 2024 UEC inputs, produce total segment thermal usages, which are then compared to actual weather-normalized 2024 billing data and a single uniform scaling factor is applied to every end use within that segment. This is confirmed by the True-Up Ratios, where every end use within a segment receives the same true-up multiplier.[150] This means if the CGR's space

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[148] Id., on the sheet titled "Usage Change Lookup Table", the equation that drives UEC changes from their base calibrated values is: UEC_next = UEC_current × (1 + Price Elasticity × % Change in Gas Price). The only factors which change the new year UEC from the current UEC are the price elasticity and the yearly change in gas price.

[149] Id., sheets "base year UEC calibration – old" and "base year UEC calibration – new" for old and new customers, respectively.

[150] Id., the True-Up ratios here refer to the ratios on the sheets "base year UEC calibration – old"

(continued on next page)

heating UEC is wrong, but its water heating UEC is right, the calibration will incorrectly adjust both by the same proportion. In fact, this process fails to validate individual end-use UEC inputs against actual data. It only determines whether each segment's total thermal usage is too high or too low in aggregate and corrects everything proportionally. This produces inaccurate UEC values since different end uses contribute different amounts to total consumption. For example, weather changes affect individual end usages differently: customers will not use as much gas for an outdoor barbeque or outdoor pool in a wet or cold year; however, the utilities cannot reasonably expect water heating usage for showers to change by that same proportional amount. Without validating how much each end use contributes to the demand in the base year and adjusting proportionally up or down to a normalized weather year, the UEC values will simply be inaccurate. Tables 12 and 13 present the calibration factors by customer segment for SCG and SDG&E, which vary substantially. The True-Up ratios in the last column are the calibration factors SCG and SDG&E apply uniformly to every end use within the given customer segment.

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and "base year UEC calibration – new" in column G under the step 3 tables "Base Year UEC inputs after Calibration (Existing/old customers)" and "Base Year UEC inputs after Calibration (New customers)" for each utility, and not the forecasted year over year True-Ups presented on the sheet "True-Up Rates".

Table 12[151]
Calibration Step for UEC Values: SCG

Segment	Weather-Adj Therms	Initial Navigator Output Therms	Difference	True-Up Ratio
SF Existing	1,498,119,186	1,579,156,434	-81,037,248	0.949 (-5.1%)
MF2 Existing	149,414,480	154,591,416	-5,176,936	0.967 (-3.4%)
MF3 Existing	314,901,922	305,289,547	+9,612,375	1.032 (+3.1%)
MM Existing	119,971,431	100,712,883	+19,258,548	1.191 (+19.1%)
SM Existing	32,851,379	34,032,848	-1,181,469	0.965 (-3.5%)
SF New	25,767,423	31,655,730	-5,888,307	0.814 (-18.6%)
MF2 New	2,695,698	3,218,862	-523,164	0.838 (-16.3%)
MF3 new	4,834,686	4,785,035	+49,651	1.01 (+1.0%)
MM new	6,663,961	1,735,871	+4,928,090	3.839 (+283.9%)

Table 13[152]
Calibration Step for UEC Values: SDG&E

Segment	Weather-Adj Therms	Initial Navigator Output Therms	Difference	True-Up Ratio
SF Existing	190,037,638	192,762,725	-2,725,088	0.986 (-1.4%)
MF3 Existing	40,368,759	39,446,760	+921,999	1.023 (+2.3%)
MM Existing	25,674,339	24,531,218	+1,143,121	1.047 (+4.7%)
SM Existing	5,339,356	5,374,256	-34,900	0.994 (-0.7%)
SF New	2,232,237	2,942,670	-710,434	0.759 (-24.1%)
MF3 New	1,352,286	1,218,504	+133,783	1.11 (+11%)
MM New	153,248	97,942	+55,306	1.565 (56.5%)

[151] True-up ratios are uniform across all end uses within each segment—space heating, water heating, cooking, drying, and all other end uses receive the identical scaling factor. A ratio above 1.0 means Navigator's initial output was too low relative to actual consumption; below 1.0 means it ran too high. All figures sourced from SCG's Response to Cal Advocates' Data Request PubAdv-SCG_SDGE-019-ST, Question 7, attachment "PubAdv-SCG_SDGE-019-ST-07.xlsx", sheets "Base Year UEC inputs after Calibration (Existing/old customers)" and "Base Year UEC inputs after Calibration (New customers)".

[152] All figures sourced from SCG's Response to Cal Advocates' Data Request PubAdv-SCG_SDGE-019-ST, Question 15, attachment "PubAdv-SCG_SDGE-019-ST-15.xlsx", sheets "Base Year UEC inputs after Calibration (Existing/old customers)" and "Base Year UEC inputs after Calibration (New customers)".

2. Forecast Equation and Economic Logic Errors

The second issue appeared when reviewing the UEC forecast equation described earlier. The equation relies only on three factors to predict the following year UEC (the current UEC, the gas price forecast and the price elasticity) and the price elasticity remains unchanged over the entire forecast horizon (i.e. the same price elasticity for each customer segment is applied uniformly for each year 2025-2031). As a result, the equation becomes entirely dependent on the gas price forecast and the current year UEC. Essentially, changes to the gas price are the only determinant of changes to the UEC from year to year that are not already predetermined. For example, in 2029, SCG's UEC increases for all residential segments.[153] This occurs because the gas price forecast falls from $4.98/MMBtu in 2028 to $4.26/MMBtu in 2029 and the price elasticity is negative and constant over the entire forecast period, so lower prices produce a higher consumption per unit. The model therefore assumes that in 2029, every gas appliance in SoCalGas's service territory will use slightly more gas than in 2028, because gas got cheaper. In the middle of California's energy transition, with building codes tightening every cycle and heat pump adoption accelerating, SCG's UEC model projects gas intensity increasing on a per-appliance basis in 2029. Just as with SCG, SDG&E's model projects UEC increasing in both 2028 and 2029 for single-family customers.[154] In fact, SDG&E's increase in 2029 (+0.068%) is five times larger than SCG's (+0.013%), because SDG&E has a larger elasticity magnitude. Therefore, a slightly falling gas price produces a more noticeable uptick in per-appliance gas consumption. SDG&E's model says customers in San Diego will use measurably more gas per appliance in 2029 than in 2028 because gas got marginally cheaper, which is simply inaccurate in the California policy context.

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[153] SCG's Response to Cal Advocates' Data Request PubAdv-SCG_SDGE-019-ST, Question 7, attachment "PubAdv-SCG_SDGE-019-ST-07.xlsx", sheet "Usage Change Lookup Table". The usage value factors developed on this sheet feed into the "UEC base year calibrated".

[154] SCG's Response to Cal Advocates' Data Request PubAdv-SCG_SDGE-019-ST, Question 15, attachment "PubAdv-SCG_SDGE-019-ST-15.xlsx", sheet "Usage Change Lookup Table".

3. Compounding Inaccuracies and Technical Omissions

Issues with the UEC values that arise from SCG and SDG&E's forecast equations are further compounded by the earlier calibration step because the True-Up rates, which SCG and SDG&E derive from these equations and applied to future years, apply uniformly to each end use.[155] This means that the both the price elasticity and the gas price apply to each end use in the same manner. Notwithstanding the inaccuracies described in the price elasticities from earlier, this is another flaw that results in inaccurate UEC forecasts during the CAP period. Customer gas usage patterns are simply not the same for barbeques as they are for water heating. Pool heating usage patterns are not the same as they are for space heating. But applying the same static price elasticity to every end use essentially treats each end use as indifferent by saying "the price of gas affects how much a customer uses their pool the same as it affects how much a customer uses their shower", which neither SCG nor SDG&E have supported with evidence. It can be reasonably assumed that if gas prices increase, a customer might cut back on pool usage more easily than on hot water usage. The True-Up equation simply does not capture end use elasticities, which defines another major flaw in the analysis.

In addition, this single equation contains no term for appliance stock turnover, no term for building code or Title 20/24 standards compliance, and no term for heat pump or other efficient technology adoption. Essentially in both utilities' modeled equation, a customer who replaces a gas furnace with a heat pump water heater is indistinguishable from a customer who does nothing. A newly constructed home built to 2025 Title 24 standards is treated as having an identical per-appliance consumption forecasted trajectory to one built in 1985.

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[155] SCG's Response to Cal Advocates' Data Request PubAdv-SCG_SDGE-019-ST, Questions 7 and 15, attachments "PubAdv-SCG_SDGE-019-ST-07.xlsx" and "PubAdv-SCG_SDGE-019-ST-15.xlsx", sheet "UEC base year calibrated". The factors from the "Usage Change Lookup Table" apply uniformly to each end use in column F by customer segment.

e) Cal Advocates' Recommendation

For the reasons set forth above, Cal Advocates recommends that the Commission direct SCG and SDG&E to resubmit their residential gas demand forecasts with the following corrections before final rates for the 2027–2029 CAP period is established. The deficiencies identified are not small calibration steps; they are structural. The Navigator model, as deployed by SCG and SDG&E, holds gas fuel shares and appliance saturation rates frozen through 2031 at levels that assume zero electrification occurs in the existing residential stock, then appends out-of-model adjustments that acknowledge electrification is occurring but cannot interact with the model's internal mechanics. The price elasticity coefficients that drive the UEC forecast are mis-specified, produce estimates below the short-run range found in published literature, are statistically insignificant for two of SDG&E's customer segments and are inconsistent between two adjacent service territories using the same modeling framework. The base year Navigator output projects rising residential gas demand from 2027 to 2029, a result that contradicts observable market conditions, and every dollar of demand decline in the filed forecast is produced entirely by three out-of-model adjustments rather than by the model itself. The residential demand forecast built here is unlikely to serve as a reliable basis for setting rates that residential ratepayers will pay for three years.

A resubmission should, at a minimum: (1) update the Navigator fuel share and saturation inputs to reflect current and projected appliance electrification rates consistent with the CEC's 2023 IEPR Additional Achievable Fuel Substitution Scenario 3, rather than holding them static; (2) replace the all-electric new construction out-of-model assumption of 50% with the empirically grounded 87.65% figure reported by SDG&E to the CPUC under D.23-12-037; (3) revise the price elasticity specification to produce coefficients that can be interpreted as conventional residential gas demand elasticities consistent with published literature, and address the serial autocorrelation documented in Tables 10 and 11; (4) apply a UEC forecast methodology that incorporates appliance efficiency improvements and building code tightening rather than treating gas price as the sole driver of annual UEC change; and (5) update the AAFS and energy efficiency out-of-model adjustments to use the most recent 2025 IEPR

AAEE 3 and AAFS 2 Hourly Impacts Tables. Until SCG and SDG&E correct these deficiencies and submit a revised forecast supported by appropriate methodology documentation, Cal Advocates recommends that the Commission adopt Cal Advocates' adjusted meter counts and residential demand figures as set forth in the tables above as the basis for rate-setting in this proceeding.

V. LARGE ELECTRIC GENERATION/COGEN FORECAST

A. Overview

This chapter presents SCG and SDG&E's forecast of 2027-2029 natural gas demand for large electric-generation and cogeneration customers. For these demand forecasts, SCG and SDG&E utilized the Energy Exemplar's PLEXOS platform to simulate least-cost hourly dispatch across the Western Electricity Coordinating Council (WECC) region. The model incorporates several key data sets: CEC's 2024–2040 electricity demand forecast (Mid case with AAEE and AAFS Scenario 3), assumed 15-year average hydro conditions, and generator operating characteristics and resource additions consistent with the CPUC's 2023 Preferred System Plan. Assumptions include major additions of storage and renewables and the retirement of 2,905 MW of OTC plants by 2026.[156] In addition, the forecasts incorporate GHG cap-and-trade compliance costs of \$50–100/MTCO$_2$e and assume that the region will not add new major transmission during the CAP period.[157] The resulting model throughput rises modestly for SCG, with combined EG and large cogeneration demand for increasing from 176 MMDth in 2027 to 189 MMDth in 2029, while SDG&E demand remains relatively constant (26 MMDth in 2027 to 27 MMDth in 2029).[158]

B. SCG and SDG&E Request

Sempra requests approval of forecasts for "the portion of the EG market comprised of: (1) utility electric generation (UEG) customers; Southern California Edison

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[156] Ex. SCG-Chapter 4, p. RF-3.

[157] Ex. SCG-Chapter 4, p. RF-4.

[158] Ex. SCG-Chapter 4, p. RF-4, Table RF-1.

Company (SCE); SDG&E; the cities of Anaheim, Burbank, Colton, Corona, Glendale, Pasadena, Riverside, and Vernon; the Los Angeles Department of Water and Power (LADWP); and the Imperial Irrigation District (IID); (2) exempt wholesale generation (EWG) customers; and (3) SoCalGas and SDG&E large cogeneration customers with generating capacity greater than 20 megawatts (MW)."[159]

C. Cal Advocates Analysis

The current EG forecast for SCG and SDG&E relies on electric demand inputs from the California Energy Commission's California Energy Demand Forecast Update (CEDU), 2024–2040,[160] adopted by the CEC in January 2025. The CED 2024 Update served as the best available demand forecast at the time Sempra filed its testimony in September 2025. However, the CEC has since adopted a materially updated forecast—California Energy Demand Forecast, 2025–2045 (CED 2025).[161] The CED 2025 incorporates refreshed economic and demographic projections, as well as updated modeling inputs for behind-the-meter photovoltaic generation, battery storage, data centers, energy efficiency, fuel substitution, and transportation electrification. The new projections directly affect the hourly electricity dispatch that PLEXOS translates into natural gas fuel burn for the CAP period years of 2027 through 2029. PLEXOS derives gas demand as an output of electricity system dispatch; therefore, the accuracy of the electric demand inputs directly determines the accuracy of the PLEXOS gas forecast. Using a superseded demand forecast as the foundation for a three-year cost allocation proceeding introduces a systematic and unquantified bias into the EG and large cogeneration forecast.

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[159] Ex. SCG-Chapter 4, p. RF-1.

[160] Ex. SCG-Chapter 4, p. RF-2. Footnote 1 in the direct testimony incorrectly cites the CEC's 2021 IEPR Report, which was not used in the workpapers for the generation forecast. The CEDU 2024 (California Energy Demand Update 2024–2040) was developed under the 2024 IEPR Update proceeding, Docket No. 24-IEPR-03, and adopted January 21, 2025. This is what was used, not the 2021 IEPR.

[161] California Energy Commission, California Energy Demand Forecast, 2025–2045 (CED 2025), developed for the 2025 Integrated Energy Policy Report (IEPR), adopted by the Energy Commission at a business meeting on January 21, 2026. CEC Docket No. 25-IEPR-03.

Cal Advocates recommends that the Commission require Sempra to update its Chapter 4 PLEXOS model inputs to reflect the adopted CED 2025 forecast and re-run the model for the 2027–2029 CAP period before the Commission finalizes the EG and large cogeneration forecast in this proceeding. The CED 2025 is the forecast currently adopted by CAISO and the CPUC for resource adequacy planning and local reliability studies for 2027, while CPUC's Integrated Resource Plan and CAISO's bulk transmission planning studies continue to use the CEDU 2024 for this planning cycle under the joint agency Single Forecast Set Agreement.[162] The CED 2025 forecasts include the same planning horizon that encompasses the CAP period. To the extent SCG and SDG&E contend that the CED 2024 Update and CED 2025 produce materially similar results for the SCE and SDG&E service territories in 2027–2029, Cal Advocates recommends that SCG and SDG&E submit formal documentation to the record showing such comparisons.

VI. NONCORE AND CONSOLIDATED DEMAND FORECASTS

A. Overview

Chapter 5 presents SCG and SDG&E's noncore and consolidated gas-demand forecasts for 2027–2029, as well as core storage allocations and unaccounted for gas (UAF gas). The forecasts are integrated from the residential/core C&I forecasts from Chapter 2, large EG/cogeneration forecasts from Chapter 4 and the weather-design methodology in Chapter 2. Together, the resulting consolidated, full utility core operations forecasts are presented here. To forecast the noncore segment, the chapter details segment-specific trends, such as modest growth in noncore commercial demand, continued declines in noncore industrial and refinery loads due to energy-efficiency mandates and fuel substitution, and reductions in small cogeneration driven by rising burner-tip gas prices. The wholesale forecasts rely on data provided by

[162] See California Energy Commission, CPUC, and California ISO, Single Forecast Set Agreement, supporting documentation for the 2025 IEPR Forecast, presented at the January 21, 2026 CEC Business Meeting. The agreement states: "The joint agencies and California ISO agreed to changes in this agreement compared to the 2024 IEPR Update. These changes respond to uncertainties introduced in the 2025 IEPR forecast cycle regarding known loads, data centers, and impacts of recent federal policy changes."

Long Beach, SWG, ECOGAS, and SDG&E. As the testimony notes, "SoCalGas forecasts noncore commercial demand to average 18,243 MDth per year" and refinery demand "to decrease about 1.2%" over the CAP period.[163] The testimony presents consolidated throughput for both Average and Cold Year weather designs; specifically, SCG Average Year demand declines to approximately 831,567 MDth and SDG&E demand declines to approximately 83,656 MDth. SCG and SDG&E's proposed peak-day and peak-month forecasts are calculated using either the 1-in-35 or 1-in-10 temperature criteria depending on customer class. The remaining sections of the chapter cover allocations of core storage and unaccounted-for gas between core and noncore markets.

B. SCG and SDG&E Request

SCG and SDG&E seek approval of their presented noncore demand and meter count forecasts, along with their consolidated demand and meter count forecasts, heating degree-day scenarios, peak day/month projections, core storage allocations, and unaccounted-for gas (UAF) figures for the 2027–2029 CAP period. Cal Advocates does not oppose the utilities' noncore demand and meter count forecasts and the consolidation methodology and associated tables. Cal Advocates has already discussed weather design changes in Section IV, and other demand and meter count forecasts for residential core customers in Section IV. Cal Advocates recommends SCG and SDG&E update their current UAF report and figures.

C. Cal Advocates Analysis

Cal Advocates reviewed the 2006 UAF study provided by SCG and SDG&E in their workpapers,[164] as well as the information provided from the previous CAP decision regarding UAF.[165]

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[163] Ex. SCG-Chapter 5, p. EM-3.

[164] Ex. SCG-Chapter 5, Workpapers, "2006 LUAF Study for SoCalGas And SDG&E", pp. 153-213.

[165] The most recent prior Commission decision governing UAF for SoCalGas and SDG&E is Decision (D.) 24-07-009, the 2024 Cost Allocation Proceeding (CAP) Rate Implementation

(continued on next page)

SCG and SDG&E propose to update the UAF percentages used for ratemaking purposes to 0.978% and 0.726%, respectively, based on the three-year recorded average from April 2022 through March 2025.[166] The UAF percentages will continue to be allocated between core and noncore customers using factors derived from the 2006 Lost and Unaccounted For (LUAF) study: 71.1% core and 28.9% noncore for SCG, and 76.71% core and 23.29% noncore for SDG&E.[167] Cal Advocates opposes this proposal for several reasons.

First, the UAF allocation factors that Sempra proposes to carry forward were developed in its 2006 study that was itself an addendum to a comprehensive 1991 LUAF study conducted by SCG's Gas Engineering Department.[168] Nearly two decades have passed since that 2006 update. The operational, technological and customer-mix conditions that formed the basis of those allocation factors have changed materially. While Sempra recently disclosed a partial 2022 LUAF review in response to Energy Division Data Request CPUC-001, it admitted that this 2022 review was not a complete or comprehensive study. This partial 2022 review focused narrowly on measurement and theft but failed to address broader system losses such as leakage.[169] Sempra

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Decision issued July 2024 in Application (A.) 22-09-015. D.24-07-009 implemented the UAF rates that have been in effect since February 1, 2025, pursuant to SoCalGas Advice Letter No. 6430-G-A filed January 29, 2025. The UAF and company-use-fuel factors currently embedded in the SoCalGas tariff were determined pursuant to D.20-02-045 (the 2020 Triennial Cost Allocation Proceeding, adopted February 27, 2020, in A.18-07-024) and subsequently implemented through SoCalGas Advice Letter No. 5680-G and SDG&E Advice Letter No. 2983-G. See D.20-02-045, which adopted demand forecasts for core and noncore customers and values for unaccounted-for gas and company-use fuel for SoCalGas and SDG&E.

[166] Ex. SCG-Chapter 5, pp. EM-19 and EM-20, Tables EM-17 and EM-18.

[167] Id.

[168] 2006 LUAF Study, Executive Summary, at 1 ("This document provides a summary of component and customer class allocations for Southern California Gas Company (SoCalGas) and San Diego Gas & Electric Company's (SDG&E) lost and unaccounted-for (LUAF) gas. The allocations are based on a review of reported year 2006 LUAF gas for the companies on areas of LUAF gas contribution as identified in a comprehensive 1991 LUAF gas study conducted by SoCalGas.").

[169] See SCG Response to Energy Division (ED) Data Request CPUC-001, Question 1, dated April 22, 2026. Sempra admits the 2022 review examined 'only the SoCalGas UAF contributions of measurement systems including physical gas meter accuracy and related processes and

(continued on next page)

proposes a carry-forward of factors that the Commission last examined and accepted through settlement in D.24-07-009.[170] Cal Advocates has examined the continued use of these frozen allocation factors and determined that they are not supported by substantial evidence. The 2022 review actually confirms Cal Advocates' concerns; it attributes 75% of UAF to measurement inaccuracies.[171] By Sempra's own admission, its current methodology which relies on a cumulative recording of receipts depends on the very measurement systems they have identified as the primary source of UAF. A comprehensive updated LUAF study is necessary prior to the establishment of final rates for the 2027-2029 CAP period.

Second, the 2006 LUAF study itself acknowledged that the gap between 1991 and 2006 conditions was significant enough to warrant a comprehensive update. In the study, it was noted that key base-data changes—including new meter types used to serve large customers and to receive gas supplies, the change in families of small meters used by SCG, the location of customers, and growth from inland areas of the service territory—had materially influenced the LUAF component results.[172] The same logic that justified updating the study in 2006 reaffirms updating it again in this proceeding. Since 2006, the Sempra utilities have undergone substantial changes in meter technology, pipeline composition, and customer throughput that are directly relevant to the core/noncore allocation of LUAF gas. For example, the 2006 study documented a significant migration from orifice meters to ultrasonic meters since 1991

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calculations. There was also a 2024 review of the theft component,' leaving substantial portions of the 2006 study un-updated.

[170] D.24-07-009, Settlement Agreement, UAF Gas Percentages Section (adopting 71.1%/28.9% core/noncore split for SoCalGas and 76.71%/23.29% split for SDG&E without requiring an updated LUAF study).

[171] SCG's Response to Energy Division (ED) Data Request CPUC-001, Question 2, "the UAF review provided in response to question 1 estimates that, for 2022, 75% of UAF (7,339 MDth / 9,772 MDth) was attributable to measurement."

[172] Ex. SCG-Chapter 5, Workpapers, 2006 LUAF Study, Analytical Approach, at 4 ("Key base-data changes from 1991 to 2006 which influenced results included the new type of meters used to serve large customers and to receive gas supplies into the system, the change in families of small meters used by SoCalGas, the location of customers and growth in the Inland areas of the service territory, and temperature differences between the analysis years.").

and developed new ultrasonic meter bias factors based on field findings available at that time.[173] Ultrasonic meter deployment has continued to expand since 2006. In addition, the calibration bias profiles used in the 2006 study, which drove meaningful LUAF allocations between core and noncore customers, have not been revisited.[174]

Similarly, the Positive Displacement meter accuracy sub-component was calculated using in-service meter population data and Meter Performance Control Program testing results from that era.[175] The Positive Displacement meter accuracy sub-component represented the single largest positive contributor to LUAF in the 2006 study and was allocated nearly 100% to core customers.[176] The meter demographics that drove those results (including the relative populations of tin, aluminum and rotary meters) have continued to evolve over the past 20 years, while the allocation factors remain frozen in place.[177] The No-Close Policy sub-component, which was also allocated 100% to core customers, was itself flagged as having changed dramatically between 1991 and 2006 due to residential customer growth.[178] Under current

[173] Ex. SCG-Chapter 5, Workpapers, 2006 LUAF Study, Appendix O (Ultrasonic Meter Accuracy), at 45 ("There were no Ultrasonic Meters installed in 1991. The computation of Ultrasonic meter gas LUAF contribution was completed using the gas LUAF% meter factors shown in Table O-1 below and applying these projected meter registration deviations to 2006 volumes for all company and supplier ultrasonic meters.").

[174] Ex. SCG-Chapter 5, Workpapers, 2006 LUAF Study, Table 1 (SoCalGas 2006 LUAF Gas Component Allocation), Line-Item O (Ultrasonic Meter Accuracy), showing SoCalGas noncore allocation of 207.85% — a net credit to noncore — driven by field-specific findings from 2006 that have not been updated.

[175] Ex. SCG-Chapter 5, Workpapers, 2006 LUAF Study, Appendix M (PD Meter Accuracy), at 40-42; Table M-1 (showing Total PD Meter UAF of 2,244,479 MCF allocated virtually 100% to core customers).

[176] Id.

[177] Ex. SCG-Chapter 5, Workpapers, 2006 LUAF Study, Appendix M, at 41 ("In 1991, the PD meter LUAF was 2,957,299 MCF. There was some reduction in 2006. It was due to the meter demographics changes that had occurred in the past 15 years."); Table M-1.

[178] Ex. SCG-Chapter 5, Workpapers, 2006 LUAF Study, Appendix F (No-Close Policy), at 22 ("This policy was a partial year pilot program in 1991 and the LUAF contribution much lower in that year (3,479 Mcf)."); Results and LUAF Gas Component Assignment Overview, Line Item F, at 7 ("The 2006 SoCalGas allocation is based on 2006 recorded data from SoCalGas' billing system and has shown significant change since the 1991 study due to residential customer growth and expansion of the no-close process.").

allocation factors, Sempra is assuming no change in No-Close Policy sub components since 2006. And for the Non-Study Components category, the dramatic shift in the core/noncore throughput ratio since 2006 renders the 2006-era energy use ratios an unreliable basis for current allocation.[179]

Finally, Sempra's UAF percentages themselves should be re-evaluated. In D.24-07-009, the parties agreed to UAF percentages of 0.787% for SoCalGas and 2.223% for SDG&E.[180] The recorded actuals for the April 2022 through March 2025 period now show UAF of 0.978% for SCG and 0.726% for SDG&E, which is approximately 24% higher from the prior CAP figure for SCG, and approximately 67% lower for SDG&E.[181] These cannot be reasonable characterized as marginal deviations; they demonstrate that the UAF percentage is highly variable from one CAP period to the next, reflecting changing operational conditions, measurement technology, pipeline integrity, customer mix, and other system factors. The late disclosure of the partial 2022 review which was only provided to the Energy Division on April 22, 2026 further underscores that Sempra has not met its burden of proof to justify these substantial shifts. If the total magnitude of UAF can shift so dramatically between CAP periods, it is simply not reasonable to assume that the underlying distribution of UAF causes (and therefore the appropriate core/noncore allocation) has remained stable since 2006. Sempra's request in this proceeding asks the Commission to accept that while the amount of gas lost or unaccounted for has changed substantially, the reasons for that loss (and which core customer classes bear the far larger responsibility for) have remained precisely unchanged for nearly two decades.

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[179] Ex. SCG-Chapter 5, Workpapers, 2006 LUAF Study, Results and LUAF Gas Component Assignment Overview, Line Item W, at 15 ("Non-study components were assigned to customer class based on aggregate customer class energy use in 2006."); Table 2 (SDG&E 2006 LUAF Gas Component Allocation), Line Item W showing Non-Study Components at 19.92% of total SDG&E LUAF. The Non-study components category represented nearly 20% of SDG&E's total 2006 LUAF and was allocated to customer classes based on aggregate energy use ratios from that year.

[180] D.24-07-009, Settlement Agreement, Attachment A, UAF Gas Percentages (a)-(b), p. 9.

[181] Ex. SCG-Chapter 5, pp. EM-19 to EM-20, Tables EM-17 and EM-18 (showing SoCalGas three-year UAF of 0.978% and SDG&E three-year UAF of 0.726% for April 2022 through March 2025).

For the aforementioned reasons, Cal Advocates recommends that the Commission reject Sempra's proposal to carry forward the 2006 LUAF allocation factors without updated support. At a minimum, the Commission should direct Sempra to conduct and file a comprehensive, third-party audited updated LUAF study that includes physical leak detection, subject to review and comment by all parties, before submitting its next CAP proceeding. The partial 2022 review provided in discovery is insufficient for ratemaking. If the Commission does determine that UAF costs and allocation factors should be updated in this proceeding from a new study, then there may be complications with completing the study prior to allocation of UAF costs. In the interim, Cal Advocates recommends that the Commission consider using current throughput-weighted core/noncore volume ratios as a conservative proxy, which would more accurately reflect the present-day distribution of system use than allocation factors derived from conditions that existed nearly twenty years ago. The core customers that Cal Advocates represents bear the overwhelming majority of UAF costs under the current allocation, and they are entitled to an allocation grounded in current evidence rather than assumptions that have gone unexamined for two decades.[182]

[182] Ex. SCG-Chapter 5, pp. EM-8 and EM-14, Tables EM-4 (showing SoCalGas residential meter count of approximately 5.844 million for the CAP period) and EM-10 (showing SDG&E residential meter count of approximately 898,254 for the CAP period).

VII. OFF-SYSTEM DELIVERY AND BACKBONE TRANSPORTATION SERVICE PROPOSALS

A. Overview

Chapter 10 presents SCG/SDG&E's three proposals to modify Off-System Delivery (OSD) and Backbone Transportation Service (BTS) in response to claimed system constraints, declining storage capacity and the failure of OSD revenues to offset development costs. The testimony explains that OSD generated "less than $30 thousand from 2012–17; and zero from 2018–2025"[183] and the utilities have not offered it since 2017 due to concerns that off-system deliveries would "impair service to on-system customers."[184] To address the growing Firm Access Storage Rights Memorandum Account (FASRMA) balance, the utilities first proposal requests the opportunity to credit Noncore Storage Balancing Account (NSBA) overcollections to FASRMA until the balance reaches zero. The second proposal requests that the Commission reduce total firm BTS capacity from the historic 3,775 MMcfd to 110% of the minimum backbone design standard.[185] In its testimony, SCG/SDG&E cite ongoing PSEP, TIMP, SIMP, and PHMSA-driven outages that make current contract levels unrealistic. The testimony states that "maintenance activity will continue for the foreseeable future," and lowering the contract limit will reduce over-nominations and protect firm shippers.[186] In the final proposal, the utilities request to confirm BTS nominations up to Total Net System Capacity in all scheduling cycles—regardless of OFO status. This change ensures that pro-rata scheduling rules do not allow lower-priority nominations to displace higher-priority firm nominations.[187]

[183] Ex. SCG-Chapter 10, p. PDB-7.

[184] Id.

[185] Id., at PDB-11.

[186] Id., at PDB-12.

[187] Id., at PDB-13.

B. SCG and SDG&E Request

The only requests in this chapter are the three proposals discussed above. Cal Advocates does not oppose SCG/SDG&E's proposals B and C. Cal Advocates opposes Proposal A.

C. Cal Advocates Analysis

Cal Advocates opposes Applicants' Proposal A, which would modify the Noncore Storage Balancing Account (NSBA) to redirect recorded positive balances to the Firm Access and Storage Rights Memorandum Account (FASRMA) until the FASRMA balance reaches zero. This proposal is structurally inconsistent with the Commission's established treatment of both accounts. The NSBA is a balancing account converted to full balancing account treatment pursuant to D.24-07-009, which means that overcollections belong to ratepayers and must be returned through transportation rates on an Equal Cents Per Therm (ECPT) basis through the annual regulatory account balance update process.[188] The FASRMA, by contrast, is a memorandum account with its own dedicated, Commission-authorized recovery mechanism: OSD revenues flow first to the System Reliability Memorandum Account (SRMA) to offset system reliability costs, then to the FASRMA to recover system modification costs, with any remaining revenues credited to the Backbone Transmission Balancing Account (BTBA) for the benefit of backbone transportation customers.[189] This revenue waterfall—established in D.11-03-029 and implemented through Advice Letter 4258—reflects a deliberate policy choice that OSD program costs be recovered through OSD revenues, not through ratepayer accounts. No authorizing decision contemplates a cross-account transfer

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[188] D.24-07-009, All-Party Settlement Agreement, Attachment A, p. 9 "The Noncore Storage Balancing Account is modified to remove the earning sharing mechanism for the net revenues from the sales of unbundled storage and hub services, resulting in full balancing account treatment."

[189] AL 4258-G (Approved October 6, 2011 by Energy Division): SoCalGas Preliminary Statement, Part VI — Firm Access and Storage Rights Memorandum Account (FASRMA), Cal. P.U.C. Sheet No. 47343-G (AL 4258, effective Mar. 10, 2011); SoCalGas Preliminary Statement, Part VI — System Reliability Memorandum Account (SRMA), Cal. P.U.C. Sheet No. 47344-G (AL 4258); SoCalGas Preliminary Statement, Part V — Backbone Transmission Balancing Account (BTBA), Cal. P.U.C. Sheet No. 47342-G (AL 4258).

from the NSBA to the FASRMA.[190] Approving Proposal A would effectively deprive ratepayers of credits they are owed under the full balancing account framework while simultaneously expanding the FASRMA's recovery mechanism in a manner never authorized by the Commission.[191]

Beyond the structural problem, Proposal A requires the Commission to accept the premise that the FASRMA balance is a cost which ratepayers are obligated to cover. This premise is directly contradicted by the conditions under which OSD service was authorized. In D.11-03-029, the Commission was explicit that OSD service "should not be subsidized by on-system customers" and "should have no adverse impact on services provided to on-system customers."[192] The FASRMA balance exists entirely because OSD service generated essentially no revenue,[193] leaving system modification costs unrecovered.[194] Redirecting NSBA overcollections to cover that balance is, in substance, precisely the on-system customer subsidy that the Commission prohibited. The corporate form of the transfer (the moving of funds between regulatory accounts rather than through rates directly) does not change its economic effect. Ratepayers who overpaid for noncore storage service and are owed a credit would instead see those funds used to retire a stranded cost balance that exists because OSD failed to produce the revenues SCG itself projected when it sought authorization for the program's expansion.[195]

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[190] D.06-12-031 (authorizing initial OSD service to PG&E); D.11-03-029 (authorizing expanded OSD service); D.24-07-009 (adopting all-party CAP settlement including conversion of NSBA to full balancing account treatment).

[191] Id.

[192] D.11-03-029 at 49 (Ordering Paragraph 1). If you have access to the specific page of D.11-03-029 that sets out the "should not be subsidized" condition beyond OP 1, citing to the body of the decision as well would strengthen footnote 4.

[193] Ex. SCG-Chapter 10, p. PDB-7, “Less than $30,000 from 2012 through 2017, and zero from 2018 through 2025”

[194] Id.

[195] D.11-03-029, p. 7. SoCalGas believed expanded OSD would increase backbone system utilization, increase storage utilization and unbundled storage revenues, and benefit on-system customers through lower transportation rates.

Cal Advocates notes that even if the Commission were to consider making the FASRMA balance recoverable from ratepayer sources, the evidentiary record in this proceeding is insufficient to support such a determination. SCG and SDG&E's testimony acknowledges that OSD service has not been offered since December 2017, attributing this to the System Operator's (SO) concerns that significant OSD activity would impair service to on-system customers given ongoing backbone transmission and storage capacity reductions under PSEP, GSEP, TIMP, and SIMP.[196] However, SCG and SDG&E have not provided underlying operational analyses reports, specific threshold criteria, or documented assessments upon which the SO based its decision to suspend OSD entirely for nearly a decade.[197] The SO's broad discretionary authority under Rule 41 and Rule 30 to curtail OSD service when it would reduce physical flows below minimum flowing supply requirements does not constitute a blank check. Not only should discretion be exercised reasonably, but the basis for suspension decisions should be documentable. SCG and SDG&E's assertion that OSD could not have been safely offered at any volume during any period from 2018 through 2025 was not fully verified in its data request response.[198] If the utilities wish to recover the FASRMA balance from any ratepayer source, it bears the burden of demonstrating that the SO's decade-long suspension was prudent, completely unavoidable and not the product of

[196] Ex. SCG-Chapter 10, pp. PDB-7 - PDB-8.

[197] In AL 4258-G attachments "SoCalGas Rule No. 30, Sheet 6, Cal. P.U.C. Sheet No. 47356-G" and "Rule No. 41, Sheet 2, Cal. P.U.C. Sheet No. 47370-G", it is broadly stated that OSD nominations may be curtailed if, in the sole judgment of the Utility, provision of OSD service would result in the Utility having to bring additional gas into its system at additional cost and that the Gas Scheduling Department will not confirm OSD services that would reduce physical flows below minimum flowing supply requirements for the Southern System. No verifiable documentation of decisions to cut OSD services when OSD was competitive were provided during the post 2012 period when it was being offered. In SCG/SDG&E's response to Cal Advocates' Data Request PUBADV-SCG_SDGE-013-ST, Question 3(b), SCG/SDG&E provided examples of winter storms with no verifiable documentation of decisions describing evidence to cut off OSD service at the time. SCG/SDG&E referred Cal Advocates to its workpapers showing available capacity with unverified numbers, rather than providing any sort of documents (written by the SO or gas operations team) from the time the SO decisions were made, which would have explicitly outlined why OSD was cut off and could have been used as evidence here to verify SCG/SDG&E's claims now.

[198] Id.

utility management decisions that could have been made differently. That showing has not been verifiably shown in the utilities' testimony, workpapers or data request responses. Cal Advocates therefore recommends that the Commission reject Proposal A and direct that the FASRMA balance remain in the account pending either the resumption of OSD service and recovery through authorized OSD revenues, or through a separate formal prudency determination.[199]

[199] Cal Advocates takes no position at this time on whether the FASRMA balance should ultimately be written off as unrecoverable or subjected to a prudency review, as that determination is beyond the scope of this proceeding. Cal Advocates' position is limited to opposing recovery through the NSBA overcollection mechanism proposed in Proposal A.

VIII. WITNESS QUALIFICATIONS – SAMUEL TOPPER

My name is Samuel Topper. My business address is 505 Van Ness Avenue, San Francisco, California. I am employed by the Public Advocates Office (Cal Advocates) as a Public Utilities Regulatory Analyst in the Energy Cost of Service and Natural Gas Branch. I am responsible for Cal Advocates testimony CA-08.

I earned a Bachelor of Arts and Sciences with Honors in Economics and a minor in Statistical Modeling from Oberlin College in 2023. Since joining Cal Advocates in January of 2024, I have served as an expert witness and prepared testimony on capital expenses for electric distribution on PG&E's 2027 General Rate Case (A.25-05-009), operations and maintenance expenses for CalPeco Electric (Liberty) Utilities' 2025 General Rate Case (A.24-09-010), incremental expenses and capital expenditures in Southern California Edison's Catalina Gas General Rate Case (A.23-12-011) and operation and maintenance expenses for Southern California Edison's Request for Authorization to Recover Costs Related to NextGen Enterprise Resource Planning Program (A.25-03-009). I have also worked on the long-term gas planning case, R.24-09-012, and on special projects such as a low-income customer affordability project. I perform analysis and prepare spreadsheets, testimony, and presentations.

Prior to joining the Public Advocates Office in 2024, I worked as an Oak Ridge Institute for Science and Education (ORISE) summer intern at the Environmental Protection Agency, an investment research intern at the National Association of Real Estate Investment Trusts (NAREIT), and as a business administrator intern at the Central Kitchen, Cleveland. I have also worked in temporary positions as a financial analyst and administrative analyst at the University of California, Irvine.

This completes my prepared testimony.