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Application: A.22-09-
Witness: Rose-Marie Payan
Chapter: 3

PREPARED DIRECT TESTIMONY OF

ROSE-MARIE PAYAN

ON BEHALF OF SOUTHERN CALIFORNIA GAS COMPANY

AND SAN DIEGO GAS & ELECTRIC COMPANY

(RESIDENTIAL, CORE MARKETS (including NGV), THE GAS PRICE FORECAST, AND THE CORE BROKERAGE FEE)

September 30, 2022

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CHAPTER 3

PREPARED DIRECT TESTIMONY OF ROSE-MARIE PAYAN

(CORE MARKETS, THE GAS PRICE FORECASTS, AND THE CORE BROKERAGE FEE)

I. PURPOSE

The purpose of my testimony is to present the Average Temperature Year, Cold Temperature Year, peak month, and extreme design peak day gas demand forecasts for the years 2024 through 2027 for Southern California Gas Company's (SoCalGas) and San Diego Gas & Electric Company's (SDG&E), residential, core commercial and industrial (C&I) and natural gas vehicle (NGV) markets. I also present the gas price forecast, and the core brokerage fee recommendation.

II. SOCALGAS RESDENTIAL GAS DEMAND FORECASTS (2024–2027)

SoCalGas is the principal distributor of natural gas in Southern California, providing retail and wholesale customers with transportation service, and for some customer classes, commodity procurement and storage service. Among SoCalGas' customer groups, residential customers comprise the greatest number of customers and, within the core market, the bulk of demand for natural gas. The forecast of natural gas demand for these residential customers follows.

A. SoCalGas Forecasted Residential Customer Growth

Active residential meters averaged 5.67 million in 2021, an increase of about 0.5% from the 2020 average. SoCalGas uses econometric and statistical techniques to develop forecasts of residential meter counts. During the Cost Allocation Proceeding period of 2024 through 2027, SoCalGas' active residential customer base is expected to grow at an average annual rate of

0.68%, reaching in excess of 5.9 million active meters by 2027. A small sector of the residential class, master meters (including sub-metered customers), is forecasted to decline at a steady 0.8% annual rate.[1]

Table 1

SoCalGas Active Residential Meters (annual averages)

SoCalGas Residential Active Meters (annual averages)

	2024	2025	2026	2027	4-Year Avg. 2024-2027
Residential	5,794,138	5,834,165	5,873,684	5,912,768	5,853,689

B. SoCalGas Forecasted Annual Residential Gas Demand

Over this cost allocation period, SoCalGas expects a reduction in gas demand for residential customers. Temperature-adjusted residential demand is projected to decline from 224,362 Mdth in 2024 to 212,820 Mdth in 2027, a decrease of about 11,542 Mdth or 1.7% per year. This forecast reflects the demand reductions from SoCalGas' energy efficiency programs, assumed fuel substitution and the effects of a weather design that exhibits declining heating degree days[2] (Hdd)'s each year over the forecast period. Table 2 provides the annual average year and cold year throughput forecasts for the residential market.

[1] This decline reflects the fact that all units in new multi-family construction or conversions are now required to have individual meters.

[2] HDD: One Hdd is accumulated for every degree Fahrenheit that the daily average temperature is below the standard reference temperature. For SoCalGas and SDG&E, the reference temperature is 65 degrees Fahrenheit.

Table 2
SoCalGas Residential Throughput (Mdth)
Average Year and 1-in-35 Cold Temperature Year

	2024	2025	2026	2027	4-Year Avg. 2024-2027
Residential (Ave Year)	224,362	220,445	216,767	212,820	218,598
Residential (Cold Year)	242,458	238,229	234,243	229,994	236,231

C. SoCalGas Residential Peak Day and Peak Month Demand

As discussed in the testimony of Wei Bin Guo (Chapter 2), the extreme peak day design criterion, which is defined as a 1 -in -35 annual event, corresponds to a system average temperature of 40.5°F for SoCalGas. For peak month planning, December demand is used because December has generally been the coldest month in SoCalGas' service territory based on more than 20 years of weather records. Tables 3 and 4 below show the forecasted residential peak day demand and cold design-temperature-year peak month demand for SoCalGas.

Table 3
1-in-35 Annual Likelihood (40.5°F System Avg. Temperature)
Peak Day Demand in Mdth/day

	2024	2025	2026	2027	4-Year Avg. 2024-2027
Residential	2,282	2,244	2,208	2,171	2,226

Table 4

Cold Design Temperature Year: Peak Month Demand (Mdth)

	2024	2025	2026	2027	4-Year Avg. 2024-2027
Residential	36,746	36,067	35,426	34,748	35,747

III. SDG&E RESDENTIAL GAS DEMAND FORECASTS (2024-2027)

SDG&E is a combined gas and electric distribution utility serving the population of San Diego and the southern portions of Orange County. For SDG&E, residential customers comprise the greatest number of customers and, within the core market, the bulk of demand for natural gas. The forecast of natural gas demand for these residential customers follows.

A. SDG&E Forecasted Residential Customer Growth

Active residential meters averaged 873,304 in 2021, an increase of about 0.7% from the 2020 average. The forecasts of residential meter counts for SDG&E are developed using similar econometric and statistical techniques described earlier for SoCalGas. During the Cost Allocation Proceeding period, SDG&E's active residential customer base is expected to grow at an average annual rate of 0.9%, reaching 921,721 active meters by 2027.

Table 5

SDG&E Active Residential Meters (Annual Averages)

	2024	2025	2026	2027	4-Year Avg. 2024-2027
Residential	896,990	905,216	913,509	921,721	909,359

B. SDG&E Forecasted Annual Residential Gas Demand

Over this cost allocation period, SDG&E expects residential natural gas demand to decrease. Temperature-adjusted residential demand is projected to drop from 27,630 Mdth in

2024 to 26,518 Mdth in 2027, a decrease of about 1,112 Mdth or -1.4% per year. This forecast reflects demand reductions from SDG&E's integrated gas and electric energy efficiency programs, assumed fuel substitution and the effects of an annual decline of HDD's to account for climate change. Table 6 provides the annual throughput forecasts under average year and cold year weather designs.

Table 6
SDG&E Residential Throughput (Mdth) Average
and 1-in-35 Cold Temperature Year

	2024	2025	2026	2027	4-Year Avg. 2024-2027
Residential (Ave Year)	27,630	27,218	26,875	26,518	27,060
Residential (Cold Year)	30,444	30,031	29,686	29,327	29,872

C. SDG&E's Retail Peak Day and Peak Month Demand

As discussed in the testimony of Wei Bin Guo (Chapter 2), the extreme peak day design criterion, which is defined as a 1-in-35 annual event, corresponds to a system average temperature of 43.3°F. For peak month planning, December demand is used because December has generally been the coldest month in SDG&E's service territory based on more than 20 years of weather records. Tables 7 and 8 below show the forecasted retail core peak day demand and cold design-temperature-year peak month demand.

Table 7
1-in-35 Annual Likelihood (43.3°F System Avg. Temperature)
Peak Day Demand in Mdth/day

	2024	2025	2026	2027	4-Year Avg. 2024-2027
Residential	306	305	303	302	304

Table 8

Cold Design Temperature Year: Peak Month Demand (Mdth)

	2024	2025	2026	2027	4-Year Avg. 2024-2027
Residential	4,477	4,413	4,358	4,301	4,387

IV. SOCALGAS' CORE C&I AND NGV GAS DEMAND FORECASTS (2024 – 2027)

A. Introduction

SoCalGas is the principal distributor of natural gas in Southern California, providing retail and wholesale customers with procurement, transportation, and storage services. In addition to serving the residential market, SoCalGas serves NGV customers and commercial, and industrial markets.

In my testimony, I continue with an examination of the economic conditions facing the utilities and the economic drivers that formed the basis for the non-residential core forecasts, followed by a review of the factors affecting gas demand in various non-residential core market sectors.

B. SoCalGas' Economic Drivers

As outlined in Tariff Rule 23, core customers include residential customers and those non-residential customers with usage less than 20,800 therms per active month. The industrial class is defined as mining and all manufacturing. Within the North American Industry Classification System (NAICS) sectors, this includes NAICS codes 210 to 213 and 311 to 339.

The core commercial class consists of all other non-residential core customers except for NGVs.[3] Load for the non-residential core market is driven largely by the economic growth outlook and other economic determinants.[4] The economic determinants that influence the model's load projection consist of the price elasticity of demand, average and marginal gas rates, average and marginal electric rates, the efficiency of the inventory of stock equipment and newly installed equipment as well as employment.

The employment forecast is one of the main drivers of the core commercial and industrial models. SoCalGas retrieves employment projections data from I.H.S. Global Insight, a third-party vendor. For SoCalGas, recorded employment data from the California Employment Development Department was aligned with a forecast of employment for the 12 counties in SoCalGas' service territory.

For the non-residential classes, I incorporate forecasts of employment growth because the business cycle drives production in commercial and industrial (C&I) sectors. In general, when economic activity contracts, businesses exit the market and active C&I meters become inactive. However, when business activity is expanding, new commercial and industrial meters are connected in our service territory. Employment elasticities by sector quantify the magnitude of the gas demand sensitivity to changes in employment, holding all other factors that influence gas demand constant.

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[3] Industrial Customers consist of those operating in the following sectors: mining, food, textiles, wood/paper, chemical, petroleum, stone, primary metal, fabricated metal, transportation and miscellaneous. Commercial customers consist of those operating in the following sectors: office, restaurant, retail, laundry, warehouse, school, college, health, lodging, government, TCU, construction, agriculture, and miscellaneous.

[4] The core commercial segments consist of activity in the following sectors: restaurant, retail, laundry, warehouse, school, college, health, lodging, government, telecommunications, construction, agriculture, and miscellaneous.

Weather is also an important driver of natural gas usage for the core industrial and commercial markets. To control for year-to-year fluctuations in weather, I have weather-adjusted the core C&I forecasts presented in my testimony to a 20-year average weather design that includes an annual adjustment for climate change. Please refer to the testimony of Wei Bin Guo (Chapter 2) for details regarding the calculation of the average year and cold year weather designs.

From 2024 to 2027, annual core commercial employment growth is forecasted to average 0.6% per year in the SoCalGas service territory. Using data provided by Global Insight's Spring 2022 outlook, the next few years should see continued growth in Southern California's jobs outlook.

C. SoCalGas Forecasted Non-Residential Core Gas Demand

Table 9 below shows SoCalGas' Core C&I and NGV throughput forecast for 2024-2027 under Average Temperature Year conditions, and Table 10 shows SoCalGas' throughput forecast for the same years under Cold Year Temperature conditions.[5] The following subsections describe the calculation of forecasted demand for the individual core customer segments.

Table 9
Composition of SoCalGas Throughput (Mdth) Average Temperature Year

	2024	2025	2026	2027	4-Year Avg. 2024-2027
Core C&I	91,109	88,902	86,969	85,148	88,032
Gas AC	14	14	14	14	14
Gas Engine	1,983	1,983	1,983	1,983	1,983
NGV	16,136	16,501	16,885	17,311	16,708
Total Core	109,242	107,400	105,851	104,456	106,737

[5] Cold Year design criteria are described in Chapter 2 (Guo).

Table 10

Composition of SoCalGas Throughput (Mdth) 1 in 35 Cold Temperature Year

	2024	2025	2026	2027	4-Year Avg. 2024-2027
Core C&I	94,382	92,106	90,115	88,237	91,210
Gas AC	14	14	14	14	14
Gas Engine	1,983	1,983	1,983	1,983	1,983
NGV	16,136	16,501	16,885	17,311	16,708
Total Core	112,516	110,604	108,997	107,545	109,915

1. Commercial and Industrial (G10 Rate Classification)

On a temperature-adjusted basis, the G10 rate classification of core load customers totaled 98,277 Mdth in 2021. It is expected to decrease to 91,109 Mdth in 2024 and then decline slightly further to 85,148 Mdth by the year 2027. The decline is driven by a confluence of factors, including, but not limited to, a broader energy efficiency portfolio which includes new customer program goals for energy efficiency as well as inclusion of the 2023 tightening of Title 24 building standards, assumed fuel substitution, and the effects of a weather design that declines by 6 Hdd/year over the forecast horizon.

2. Natural Gas Vehicles

NGV throughput is expected to increase from 15,252 Mdth in 2021 to 16,136 Mdth in 2024 and 17,311 Mdth by 2027. Most of the forecasted NGV growth is expected to stem from the public sector for public transit, goods movement, and trash haulers.

3. Gas A/C and Gas Engines

The gas engine throughput totaled 2,198 Mdth in 2021, and it is expected to decline to 1,983 Mdth by the year 2024 and remain flat through the cost allocation period.

In 2021, the gas A/C load totaled 13 Mdth. The gas A/C load is expected to rise to 14 Mdth by 2024 and remain flat throughout the cost allocation period.

D. SoCalGas' Retail Non-Residential Core Peak Day and Peak Month Demand

SoCalGas plans and designs its system to provide continuous service to its core (retail and wholesale) customers under an extreme peak day event. The extreme peak day design criteria are defined as a 1-in-35 annual event; this corresponds to a system average temperature of 40.5 degrees Fahrenheit (°F).

For peak month planning, December demand is used because, on a calendar year basis, it has generally been the coldest month in SoCalGas' service territory based on more than 20 years of recorded weather data. Tables 11 and 12 below show the forecasted retail core peak day demand and cold design-temperature-year peak month demand.

Table 11
1-in-35 Annual Likelihood (40.5°F System Avg. Temperature)
Peak Day Demand in Mdth/day

	2024	2025	2026	2027	4-Year Avg. 2024-2027
Non-Residential Core					
Core C&I	541	529	518	508	524
Gas AC	0.03	0.03	0.03	0.03	0.03
Gas Engine	3	3	3	3	3
NGV	46	47	48	50	48
Total Non-Residential Core	590	579	570	561	575

Table 12
Cold Design Temperature Year: Peak Month Demand in Mdth

	2024	2025	2026	2027	4-Year Avg. 2024-2027
Non-Residential Core					
Core C&I	10,627	10,360	10,125	9,902	10,253
Gas AC	1	1	1	1	1
Gas Engine	90	90	90	90	90
NGV	1,432	1,466	1,502	1,542	1,486
Total Non Residential Core	12,150	11,917	11,718	11,535	11,830

V. SDG&E'S CORE C&I AND NGV GAS DEMAND FORECASTS (2024 – 2027)

A. Introduction

SDG&E delivers natural gas to customers in San Diego County and northern Orange County. Non-residential core gas throughput in SDG&E's system for the year 2021 totaled 19,627 Mdth, which is an average of 54 Mdth/day. SDG&E's forecast report begins with a discussion of area economic conditions, followed by a discussion of the factors affecting gas demand in various market sectors. Summary tables and figures underlying the forecast are provided.

B. SDG&E's Economic Drivers

SDG&E's gas demand forecast is determined by the economic outlook for its San Diego County service area. The economic determinants that influence the model's load projection consist of price elasticity of demand, average and marginal gas rates, average and marginal electric rates, the efficiency of the inventory of stock equipment and newly installed equipment from new customers as well as the load changes generated by those existing customers who switch out old equipment to more energy efficient equipment. Employment growth is a key determinant of the non-residential core load. For the forecast period, SDG&E's total active gas meters are expected to increase at an average rate of 0.9 % per year.

SDG&E's forecasting models integrate input assumptions regarding demographics, economics, and measurable factors that affect throughput. Those input assumptions were based on Global Insight's 2022 Regional forecast (both California state-level and for San Diego County).

The employment assumptions surrounding the meter growth are formed from historical data and an employment projection for SDG&E. Recorded data are pulled from the California Employment Development Department for the San Diego area service territory. Recorded data

are then projected into the forecast period by applying Global Insight's forecasted percentage growth rates to the latest year of corresponding recorded data at the time the forecast was made. G-10 commercial employment in the San Diego area is expected to climb to 1.46 million in 2027, which is up from 1.3 million in 2021.

I incorporate forecasts of employment growth because the business cycle drives production in commercial and industrial sectors. In general, when economic activity contracts, businesses in multiple sectors suffer economic losses and exit the market, causing active meters to become inactive. However, when business activity is expanding, new commercial and industrial meters are connected in our service territory because of the existence of more for-profit opportunities for those enterprises. Employment elasticities by sector reflect how sensitive gas demand fluctuations are to employment changes, holding all other drivers that affect gas demand constant.

Weather is also an important driver of natural gas usage for the GN3 core commercial and industrial markets. However, to control for year-to-year fluctuations in weather, I have weather adjusted the core C&I forecasts presented in my testimony to a 20-year average weather design.

C. SDG&E Non-Residential Core Gas Demand

Core non-residential gas usage forecasts are derived from models that integrate demographic assumptions, economics, energy prices, energy conservation, building and appliance standards, weather, and other factors. Table 13 below shows SDG&E's Core C&I and NGV throughput forecast for 2024-2027 under Average Temperature Year conditions, and Table 14 shows SoCalGas' throughput forecast for the same years under Cold Year Temperature

conditions.[6] The following subsections describe the calculation of forecasted demand for the individual core customer segments.

Table 13

Composition of SDG&E Throughput in Mdth Average Temperature Year

Core Non Residential					
Core C&I	17,979	17,934	17,865	17,787	17,891
NGV	2,355	2,305	2,305	2,305	2,318
Total	20,334	20,240	20,170	20,093	20,209

Table 14

Composition of SDG&E Throughput in Mdth 1-in-35 Cold Year Temperature

Core Non-Residential					
Core C&I	18,566	18,521	18,450	18,372	18,477
NGV	2,355	2,305	2,305	2,305	2,318
Total	20,921	20,826	20,756	20,677	20,795

On a temperature-adjusted basis, C&I market demand in 2021 totaled 17,310 Mdth. Core C&I demand is forecasted to fall slightly to 17,979 Mdth in 2024 and 17,787 Mdth by 2027. Over the forecast period, the load is shown to decline at an average annual rate of 0.4%. The decline is driven by a confluence of factors, including, but not limited to, tighter Title 24 building codes and standards, stricter energy efficiency measures, assumed fuel substitution and the effects of lessening Hdd's each year of the forecast period.

In addition, as for natural gas vehicles, SDG&E's NGV throughput is expected to decline from 2,355 Mdth in 2024 to 2,305 Mdth in 2027.

[6] Cold Year design criteria are described in Chapter 2 (Guo).

D. SDG&E's Core Peak Day and Peak Month

SDG&E plans and designs its system to provide continuous service to its core customers under an extreme peak day event. The extreme peak day design criteria are defined as a 1-in-35 annual event; this corresponds to a system average temperature of 43.3°F.

Tables 15 and 16 below show the forecasted core peak day demand and the forecasted peak month demand for a cold design temperature year.

Table 15
1-in-35 Annual Likelihood (43.3°F System Avg. Temperature)
Peak Day Demand in Mdth/day

	2024	2025	2026	2027	4-Year Avg. 2024-2027
Core Non-Residential					
Core C&I	102	102	101	101	102
NGV	7	6	6	6	6
Total	108	108	108	108	108

Table 16
Cold Design Temperature Year: Peak Month Demand in Mdth

	2024	2025	2026	2027	4-Year Avg. 2024-2027
Core Non-Residential					
Core C&I	2,110	2,104	2,095	2,084	2,098
NGV	202	198	198	198	199
Total	2,313	2,302	2,292	2,282	2,297

VI. PRICE FORECAST (2024-2027)

The natural gas price forecast used to develop the demand forecasts for SoCalGas and SDG&E in this proceeding was prepared in March 2022 using S&P Global/Platt's Commodity Risk Solution's reported natural gas forward curve. The gas price forecast was developed using a combination of market prices and market fundamentals over different time frames of the prepared gas price forecast. For the period covering 2022-2027, the gas prices represent the confluence of NYMEX prices and S&P Platt's Global's basis differential outlook to Henry Hub.

For the period of 2028-2029, the forecast reflects a blending of market fundamental prices and declining weights for market prices. Beyond 2030, the forecast will reflect the pure market fundamentals of 3 industry experts and the S&P Platt's Global basis differential outlook to Henry Hub. Consistent with the gas price forecast methodology used to develop demand forecasts authorized by Commission Decision (D.) 09-11-006,[7] SoCalGas and SDG&E used this methodology to forecast the cost of gas to be used for determining the cost of Unaccounted-For (UAF) and Company-Use (CU) fuel.

Table 17 illustrates the estimates of the SoCalGas Border price used for this filing.

Table 17
SoCalGas and SDG&E
Natural Gas Price at the SoCal Border (nominal US $)

	2024	2025	2026	2027	4-Year Avg. 2024-2027
SoCalGas Border Prices ($/MMBTU)					
	$3.46	$3.33	$3.47	$3.47	$3.43

VII. BROKERAGE FEE STUDY

Based on an updated core brokerage fee study consistent with that used in the 2020 TCAP Decision (D.20-02-045), the core brokerage fee proposed for this cost allocation proceeding is 0.299 cents per therm, as shown in Table 18.

[7] D.09-11-006 approved a settlement agreement in Phase 2 of SoCalGas and SDG&E's 2009 BCAP.

Table 18

Brokerage Fee Summary		
Current Brokerage Fee*	**0.210**	cents per therm
Proposed Brokerage Fee* (SoCalGas+SDG&E)	**0.299**	cents per therm

*Before FF&U

This Brokerage Fee is based on a total cost of $9,730,099 to provide core gas acquisition services to SoCalGas and SDG&E's retail core class of customers. The costs of Gas Acquisition, Demand Forecasting, Case Management, Tariffs, Human Resources, and Legal Services are included in the total cost to provide gas acquisition services. The breakdown of these costs is shown in Table 19 below. Beginning in 2017, and confirmed in D.20-02-045, the recovery of gas commodity working cash is included in the brokerage fee. The commodity-related cash working capital for SoCalGas and SDG&E is $734,374 and $205,006, respectively. The complete study is shown in the accompanying workpapers.

Table 19

Total Brokerage Fee Costs

Total Cost Estimate				Difference		
	Labor	**NonLabor**	**Overheads**	**Direct Cost**	**Rent**	**Total**
Gas Acquisition	$4,471,095	$474,356	$3,233,704	$8,179,155	$590,241	$8,769,397
Demand Forecasting	$44,511	$6,625	$29,974	$81,110	$11,000	$92,110
Case Management	$9,096	$199	$4,864	$14,159	$1,341	$15,500
Regulatory Tariff	$72,524	$9,650	$55,205	$137,380	$7,646	$145,027
Human Resources	$9,925	$130	$8,359	$18,413	$2,414.62	$20,828
Law	$172,500	$15,525	$108,675	$296,700	$30,537.94	$327,238
	$4,779,651	$506,485	$3,440,781	$8,726,917	$643,182	$9,370,099

	Rate Base	**Return & Tax**	**Total**
SoCalGas Commodity-Related Cash Working Capital	$7,820,812	9.39%	$734,374
SDG&E Commodity-Related Cash Working Capital	$1,768,815	11.59%	$205,006
Total			$10,309,479

This concludes my prepared direct testimony.

VIII. QUALIFICATIONS

My name is Rose-Marie Payan. My business address is 555 West Fifth Street, Los Angeles, California, 90013. I am employed by Sempra Energy Utilities. Since 2005, I have been employed as a forecasting advisor and as a principal economic regulatory advisor in the Gas Regulatory Affairs Department for SoCalGas and SDG&E.

My academic and professional qualifications are as follows: I earned an undergraduate degree in Economics from the University of California, Davis in 1990, where I was also a Regents' Scholar. In 1993, I received my Master of Arts Degree in Economics from the University of California, Santa Barbara. My employment outside of SoCalGas has been in the area of Economics. I held the positions of: Analyst at Micronomics, Consultant at Navigant Consulting; full time economics lecturer at California Polytechnic Institute, San Luis Obispo; and Adjunct Lecturer at California State University, Channel Islands, Diablo Valley College, Glendale Community College, California State University, Northridge and California State University, Los Angeles' College of Business and Economics. I have taught courses on econometrics, money and banking, economic growth and development, international trade and finance as well as the core principles courses of macroeconomics and microeconomics.

I have previously submitted testimony before the Commission.