Exhibit No.:
Application: A.18-07-
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

(CORE C&I AND GAS PRICE FORECASTS, EXCHANGE DELIVERIES, AND THE CORE BROKERAGE FEE)

July 2018

TABLE OF CONTENTS

Page

CHAPTER 3

PREPARED DIRECT TESTIMONY OF ROSE-MARIE PAYAN

(CORE C&I AND GAS PRICE FORECASTS, EXCHANGE DELIVERIES, 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 2020 through 2022 for Southern California Gas Company's (SoCalGas) and San Diego Gas & Electric Company's (SDG&E) core commercial and industrial (C&I) and natural gas vehicle (NGV) markets. I also present the forecast of gas exchange volumes between SoCalGas and Pacific Gas and Electric Company (PG&E) for 2020-2022, the gas price forecast, and the core brokerage fee recommendation.

II. SOCALGAS' CORE C&I AND NGV GAS DEMAND FORECASTS (2020 – 2022)

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, commercial, and industrial markets, SoCalGas provides gas for the Enhanced Oil Recovery (EOR) and electric generation (EG) markets in Southern California. SoCalGas' four wholesale customers are SDG&E, Southwest Gas Corporation (SWG), the City of Vernon (Vernon), and the City of Long Beach Gas and Oil Department (Long Beach). SoCalGas also provides gas service to ECOGAS in Mexicali, Mexico.

In my testimony, I begin with an examination of the economic conditions facing the utilities and the economic drivers that formed the basis for the forecasts, followed by a review of

the factors affecting gas demand in various core market sectors. Summary tables and figures underlying my forecasts are also provided.

B. SoCalGas' Economic Drivers

As outlined in Rule 23, core customers include residential customers and those nonresidential 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.[1] Load for the non-residential core market is driven largely by the economic growth outlook and other economic determinants. 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 sectors. When economic activity

[1] 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, telecommunications, construction, agriculture, and miscellaneous.

contracts, businesses exit and active meters become inactive. However, when business activity is expanding, new commercial and industrial meters are connected in our service territory.

Weather is also an important driver of natural gas usage for the core industrial and commercial 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. Please refer to the testimony of Gregory Teplow (Chapter 2) for details regarding the calculation of the average year and cold year weather designs.

From 2017 to 2022, annual core commercial employment growth is forecasted to be 1% per year in the SoCalGas service territory. Using data provided by Global Insight, the next few years should see continued growth in Southern California's jobs outlook. Total core commercial sector employment in SoCalGas' service territory was 8.18 million in 2017.

C. SoCalGas Forecasted Core Gas Demand

Table 1 below shows SoCalGas' Core C&I and NGV throughput forecast for 2020, 2021, and 2022 under Average Temperature Year conditions, and Table 2 shows SoCalGas' throughput forecast for the same years under Cold Year Temperature conditions.[2] The following subsections describe the calculation of forecasted demand for the individual core customer segments.

[2] Cold Year design criteria are described in the Chapter 2 (Teplow).

Table 1
Composition of SoCalGas Throughput (Mth) Average Temperature Year

Non Residential Core	2020	2021	2022	3 Year Average 2020-2022
Core G-10	1,013,303	994,178	970,636	992,706
Gas A/C	416	416	416	416
Gas Engine	22,302	22,302	22,302	22,302
NGV	169,332	178,598	188,377	178,769
Total Non Residential Core	1,205,353	1,195,494	1,181,731	1,194,193

Table 2
Composition of SoCalGas Throughput (Mth) 1 in 35 Cold Temperature Year

Non Residential Core	2020	2021	2022	3 Year Average 2020-2022
Core G-10	1,055,275	1,036,152	1,012,595	1,034,674
Gas A/C	416	416	416	416
Gas Engine	22,302	22,302	22,302	22,302
NGV	169,332	178,598	188,377	178,769
Total Non Residential Core	1,247,325	1,237,468	1,223,690	1,236,161

1. G10 Commercial and Industrial

On a temperature-adjusted basis, G10 core load in 2017 totaled 1,048,765 Mth. It is expected to decrease to 1,013,303 MTh in 2020 and then decline slightly further to 970,636 Mth by the year 2022. 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 2016 tightening of Title 24 building standards.

2. Natural Gas Vehicles

NGV throughput is expected to increase from 144,347 Mth in 2017 to 169,332 Mth in 2020 and 188,377 Mth by 2020. 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 18,056 Mth in 2017, and it is expected to decline to 15,450.6 Mth by the year 2020 and remain flat through the TCAP period.

In 2017, the gas A/C load totaled 826 Mth. The gas A/C load is expected to fall to 408.6 Mth by 2020 and remain flat throughout the TCAP period.

D. SoCalGas' Retail 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 40.3 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 3 and 4 below show the forecasted retail core peak day demand and cold design-temperature-year peak month demand.

Table 3
1-in-35 Annual Likelihood (40.3°F System Avg. Temperature)
Peak Day Demand in Mth/day

Non Residential Core	2020	2021	2022	3 Year Average 2020-2022
Core G-10	5,832	5,764	5,680	5,759
Gas A/C	1	1	1	1
Gas Engine	31	31	31	31
NGV	450	474	500	475
Total Non Residential Core Peak Day	6,314	6,270	6,212	6,265

Table 4
Cold Design Temperature Year: Peak Month Demand in Mth

Non Residential Core	2020	2021	2022	3 Year Average 2020-2022
Core G-10	111,183	109,091	106,508	108,927
Gas A/C	26	26	26	26
Gas Engine	973	973	973	973
NGV	13,941	14,705	15,516	14,721
Total Non Residential Core Peak Month Demand	126,123	124,795	123,023	124,647

III. SDG&E'S CORE C&I AND NGV GAS DEMAND FORECASTS (2020 – 2022)

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 2017 totaled 208,236 Mth, which is an average of 570.5 Mth/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 also 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 0.7 % 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 2018 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 1.5 million in 2022, which is up from 1.36 million in 2017.

I incorporate forecasts of employment growth because the business cycle drives production in commercial and industrial sectors. When the economic activity contracts,

businesses exit and active meters become inactive. However, when business activity is expanding, new commercial and industrial meters are connected in our service territory.

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 Core Gas Demand

Core customer 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 5 below shows SDG&E's Core C&I and NGV throughput forecast for 2020, 2021, and 2022 under Average Temperature Year conditions, and Table 6 shows SoCalGas' throughput forecast for the same years under Cold Year Temperature conditions.[3] The following subsections describe the calculation of forecasted demand for the individual core customer segments.

Table 5
Composition of SDG&E Throughput in Mth Average Temperature Year

Non Residential Core	2020	2021	2022	3 Year Average 2020-2022
Core GN3	195,951	195,005	193,377	194,778
NGV	22,471	24,090	25,826	24,129
Total Non Residential Core	218,422	219,095	219,203	218,907

[3] Cold Year design criteria are described in Chapter 2 (Teplow).

Table 6
Composition of SDG&E Throughput in Mth 1-in-35 Cold Year Temperature

Non Residential Core	2020	2021	2022	3 Year Average 2020-2022
Core GN3	204,414	203,464	201,829	203,236
NGV	22,471	24,090	25,826	24,129
Total Non Residential Core	226,885	227,554	227,655	227,365

On a temperature-adjusted basis, C&I market demand in 2017 totaled 208,236 Mth. Core C&I demand is forecasted to fall slightly to 195,951 Mth in 2020 and 103,377 Mdth by 2022. Over the forecast period, the load is shown to decline at an average annual rate of 0.3%. The decline is driven by a confluence of factors, including, but not limited to, tighter Title 24 building codes and standards and stricter energy efficiency measures.

In addition, as for natural gas vehicles, SDG&E's NGV throughput is expected to increase from 22,471 Mth in 2020 to 25,826 Mdth in 2022, with growth expected in both private and public sectors.

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 42.8°F.

Tables 7 and 8 below show the forecasted core peak day demand and the forecasted peak month demand for a cold design temperature year.

Table 7
1-in-35 Annual Likelihood (42.8°F System Avg. Temperature)
Peak Day Demand in Mdth/day

Non Residential Core	2020	2021	2022	3 Year Average 2020-2022
Core GN-3	1,120	1,116	1,110	1,115
NGV	59	63	68	63
Total Non Residential Core Peak Day	1,179	1,179	1,178	1,179

Table 8
Cold Design Temperature Year: Peak Month Demand in Mth

Non Residential Core	2020	2021	2022	3 Year Average 2020-2022
Core GN-3	23,461	23,356	23,175	23,331
NGV	1,825	1,957	2,098	1,960
Total Non Residential Core Peak Month Demand	25,286	25,313	25,273	25,291

IV. EXCHANGE GAS FORECASTS (2020 – 2022)

The exchange of gas between SoCalGas and PG&E for operational reasons has been an ongoing practice since 1949. Such exchanges are currently governed by the Master Exchange Agreement (MEA), approved by the Commission in February 1990. The net exchange of gas deliveries under the MEA is forecasted to be -1,711.5 Mdth each year over the period 2020-2022. SoCalGas' annual deliveries are expected to equal 306.5 Mdth, while PG&E's deliveries are expected to be 2,018 Mdth. The exchange forecast is based on the historical average spanning 2015-2017. Over the historic period that generates the sample, the exchange values in

Table 9 below show that PG&E deliveries to SoCalGas exceeded SoCalGas deliveries to PG&E and have been rising.

Table 9
Exchange Gas Historical Volumes in Mdth

	2015	2016	2017	3 Year Avg.
SoCalGas Deliveries to PG&E	304.5	305.0	310	306.5
PG&E Deliveries to SoCalGas	1,707	2,837.4	1,509.5	2,018
Net Difference	(1,402.6)	(2,532.3)	(1,199.6)	(1,711.5)

V. GAS PRICE FORECAST (2020 – 2022)

The natural gas price forecast used to develop the demand forecasts for SoCalGas and SDG&E in this proceeding was prepared in March 2018 using S&P Global/Platt's Commodity Risk Solution's reported natural gas forward curve. Forward curves establish what the market thinks about the future of commodity prices and they are based on existing contracts for future transactions. The futures prices fluctuate daily based on today's transactions for future deliveries that are generated by expectations on future supply and demand considerations. Consistent with the gas price forecast methodology used to develop demand forecasts authorized by Commission Decision (D.) 09-11-006,[4] 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. Futures natural gas prices were extracted to form the outlook through December 2022.

Table 10 illustrates the estimates of the SoCalGas Border price used for this filing.

[4] D.09-11-002 approved a settlement agreement in Phase 2 of SoCalGas and SDG&E's 2009 BCAP.

Table 10
SoCalGas and SDG&E
Natural Gas Price at the SoCal Border (nominal US $)

	$/MMBtu
2020	$2.36
2021	$2.44
2022	$2.53
Three-Year Average (2020-2022)	**$2.44**

VI. BROKERAGE FEE STUDY

The SoCalGas and SDG&E core brokerage fee is currently 0.204 cents per therm. Based on an updated core brokerage fee study consistent with that used in the 2020 TCAP approved by D.14-06-007, the core brokerage fee proposed for this TCAP is 0.207 cents per therm, as shown in Table 11.

Table 11

Brokerage Fee Summary		
Current Brokerage Fee*	**0.204**	cents per therm
Proposed Brokerage Fee* (SoCalGas+SDG&E)	**0.207**	cents per therm

*Before FF&U

This Brokerage Fee is based on a total cost of $6,070,702 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, Commercial & Industrial Sales, Information Technology Support, and Legal Services are included in the total cost to provide gas acquisition services. The breakdown of these costs is shown in Table 12 below. Beginning in 2017, and as stipulated by the settlement agreement from the last TCAP, 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 $1,519,026 and $205,006, respectively. The complete study is shown in the accompanying workpapers.

Table 12
Total Brokerage Fee Costs

Total Cost Estimate						
	Labor	NonLabor	Overheads	Direct Cost	Rent	Total
Gas Acquisition	$2,729,392	$246,766	$2,328,810	$5,304,968	$473,070	$5,778,037
Demand Forecasting	$37,628	$2,770	$31,711	$72,109	$9,330	$81,439
Case Management	$13,724	$2,094	$26,563	$42,380	$3,022	$45,402
Regulatory Tariff	$16,544	$7,594	$8,066	$32,204	$2,628	$34,832
Human Resources	$16,428	$642	$5,609	$22,680	$2,102.53	$24,782
Law	$60,875	$5,479	$38,351	$104,705	$1,503.61	$106,209
	$2,874,591	$265,346	$2,439,109	$5,579,045	$491,657	$6,070,702
			Rate Base	Return & Tax		Total
SoCalGas Commodity-Related Cash Working Capital			$12,949,920	11.73%		$1,519,026
SDG&E Commodity-Related Cash Working Capital			$1,768,815	11.59%		$205,006
Total						$7,794,733

This concludes my prepared direct testimony.

VII. 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, macroeconomics and microeconomics.

I have previously submitted testimony before the Commission.