Application No:	A.15-09-013	
Exhibit No.:		
Witness:	G. Marelli	

In The Matter of the Application of San Diego Gas & Electric Company (U 902 G) and Southern California Gas Company (U 904 G) for a Certificate of Public Convenience and Necessity for the Pipeline Safety & Reliability Project

Application 15-09-013 (Filed September 30, 2015)

PREPARED DIRECT TESTIMONY OF

GWEN MARELLI

ON BEHALF OF

SAN DIEGO GAS & ELECTRIC COMPANY

AND

SOUTHERN CALIFORNIA GAS COMPANY

BEFORE THE PUBLIC UTILITIES COMMISSION OF THE STATE OF CALIFORNIA

March 21, 2016

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I. PURPOSE AND OVERVIEW

The purpose of my prepared direct testimony on behalf of San Diego Gas & Electric Company (SDG&E) and Southern California Gas Company (SoCalGas) (collectively, the Utilities) is to explain why, from the perspective of the director responsible for Backbone Transportation Service (BTS) to all customers, and local transmission service to electric generation (EG), and wholesale customers on the integrated SoCalGas and SDG&E natural gas transmission system (Gas System), the Pipeline Safety & Reliability Project (PSRP or Proposed Project)¹ is necessary and should be approved by the California Public Utilities Commission (CPUC or Commission). Specifically, my testimony will discuss:

- How the Proposed Project improves the resiliency of the Gas System and maintains customer access to competitively-priced supply;
- Alternatives that rely on using the Otay Mesa receipt point (Otay Mesa) requiring
 customers to procure and transport gas supply to the SDG&E system do not
 provide the same resiliency or access to competitively-priced supply as the
 Proposed Project's² receipt point at Rainbow Station, which will result in
 increased costs;
- How the Proposed Project would avoid additional costs of alternative supplies associated with pressure testing line 1600; and
- The history of BTS service on the Utilities' integrated Gas System and why the Proposed Project should become part of the integrated Gas System.

¹ The Utilities use these terms interchangeably throughout the testimony and Application.

² As described in the Amended Application, the Utilities retained Price Waterhouse Coopers (PwC) to perform a cost-effectiveness analysis of the Proposed Project and the alternatives identified in the Joint Assigned Commissioner and Administrative Law Judge's Ruling Requiring an Amended Application and Seeking Protests, Responses and Replies issued January 22, 2016 (Ruling). *See* Amended Application, Volume III – Cost-Effectiveness Analysis. The Cost-Effectiveness Analysis and underlying methodology were performed by PwC with input and data from the Utilities. I have provided data input to the analysis, specifically with respect to Alternatives E and F, as well as other data inputs for the portions of the analysis that pertain to my testimony below.

II. THE PROPOSED PROJECT IMPROVES THE RESILIENCY OF THE GAS SYSTEM AND MAINTAINS CUSTOMER ACCESS TO COMPETITIVELY-PRICED SUPPLY

As discussed in the Prepared Direct Testimony of David Bisi, the Gas System in San Diego County (SDG&E system) currently relies upon two high pressure transmission pipelines, Line 1600 and Line 3010, which extend south from the SoCalGas system at Rainbow Station, and the Moreno Compressor Station. As explained by Mr. Bisi, without Line 3010 or the Moreno Compressor Station, SDG&E system capacity would be reduced and reliability would be compromised. My testimony explains that an extended, unplanned outage on Line 3010 or Moreno Compressor Station would either cause customers on the SDG&E system to endure capacity-based curtailments on a regular basis, ³ or force them to purchase higher-priced supply at the Otay Mesa receipt point. That higher-priced supply at Otay Mesa would also require a pipeline expansion of the pipeline system that moves gas from Ehrenberg, Arizona to Otay Mesa. For that path, systems with sufficient capacity of 400 million cubic feet per day (MMcfd) need to be available for purchase on a firm basis.

In addition to the significant safety benefits of the PSRP discussed by other witnesses, replacing Line 1600 with an upgraded pipeline is beneficial from a reliability and resiliency standpoint because the only alternative supply available to SDG&E customers during a Line 3010 or Moreno Compressor Station outage are: (1) those transported south on the backbone system from Rainbow Station at the Riverside County/San Diego County line via Line 1600, but at an insufficient system capacity to meet demand (up to only 150 MMcfd), or (2) via the Otay Mesa interconnect transported north from the Mexican border. As Mr. Bisi explains in his

³ Upon recognition of a transmission system capacity constraint, curtailment procedures will be implemented according to SDG&E Gas Rule 14. SDG&E Gas Rule 14 curtails interruptible noncore and electric generation customers first, followed by firm electric generation and finally, remaining firm noncore customers.

testimony, the backbone system at Otay Mesa interconnects with the Transportadora de Gas Natural de Baja California (TGN) system where customers can access up to 400 MMcfd of firm BTS capacity. As explained later in my testimony, however, BTS customers have rarely, if ever, scheduled receipt points at Otay Mesa, since the receipt point was established in 2008. Even if BTS customers were to schedule the Otay Mesa receipt point, if there is an extended, unplanned outage on Line 3010 or Moreno Compressor Station,⁴ the costs to them may be significant, as discussed further below. Given such anticipated costs, and in light of the significant safety benefits provided by the PSRP discussed by other witnesses, the Proposed Project is the best approach to address multiple needs at this unique time when Line 1600 must be pressure tested or replaced to comply with Public Utilities Code Section 958 and Decision (D.) 11-06-017, as explained in the Prepared Direct Testimony of Douglas Schneider.

III. OTAY MESA RECEIPT POINT ALTERNATIVES DO NOT PROVIDE THE RESILIENCY OR COMPETITIVE SUPPLIES FOR CUSTOMERS AS COMPARED TO THE PROPOSED PROJECT

A. Assumptions for Otay Mesa Receipt Point Alternatives

The Ruling identifies two alternative projects utilizing the Otay Mesa receipt point – Non-Physical (Contractual) or Minimal Footprint Solutions (Alternative E) and the Northern Baja Alternative (Alternative F),⁵ both of which rely upon the use of Otay Mesa capacity in place of the PSRP. The Northern Baja Alternative (Alternative F) is essentially a subset of the non-physical (contractual) or minimal footprint solution (Alternative E). The Ruling's identification of Alternative E as a "contractual solution" is a misnomer, as it still requires the physical

⁵ Ruling, at 13.

⁴ As discussed in greater detail in Mr. Bisi's testimony, at 6-7.

construction of new pipeline facilities⁶ via an expansion on the North Baja pipeline systems comprised of three pipelines (North Baja Pipeline to Gasoducto Rosarito to TGN) – collectively, "North Baja Pipeline Systems" (see Figure 1).

FIGURE 1 North Baja Pipeline Systems⁷ Blythe NB California Receipt Point **Ehrenberg EP** SoCalGas Co. Receipt Point SDG&E El Paso Gas Co. North Baja Otay Mesa **Receipt Point** Arizona Tijuana TGN Gasoducto Rosarito Yuma **ECA LNG Facility** Baja California Sonora

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Accordingly, the Utilities will refer to the two alternatives as a single project titled "Otay Mesa Alternatives." To meet the resiliency benefit described in the next Section, the Otay Mesa Alternatives require an expansion on the North Baja Pipeline Systems to deliver 400 MMcfd on a firm basis to the SDG&E system at the Otay Mesa receipt point. Specifically, the Otay Mesa Alternatives require the Utilities to secure a multi-year firm capacity contract for the

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⁶ The Utilities were ordered in the Ruling to consider other specific variations for Alternative E: 1) use of the Southern System Minimum Flow Requirement; 2) operational flow orders; 3) system balancing; and 4) tariff discounts. These other variations' cost assumptions are addressed in the Cost-Effectiveness Analysis.

Not to scale, for illustrative purposes only.

- B. In Assessing the Resiliency Benefit During an Unplanned Outage on Line 3010, it is Not Prudent to Rely on Supplies Through the Otay Mesa Receipt Point (Otay Mesa Alternatives) Compared to the Proposed Project
 - i. Firm Pipeline Capacity Service Through the North Baja Pipeline Systems is Likely not Available

In the Prepared Direct Testimony of Jani Kikuts, he describes an outage scenario to illustrate the potential impact to the SDG&E system and customers in the event of an unplanned disruption of service on Line 3010. That scenario assumes that alternate gas supplies through Otay Mesa are not available in the short term at the time of the Line 3010 outage. My testimony explains that assumption and why service from Otay Mesa cannot be relied upon during such an outage due to the higher costs and other practical considerations that make this option an unlikely source of supply.

Gas supply available at Otay Mesa is sourced from either: (1) the El Paso Natural Gas (EPNG) southern system at Ehrenberg, Arizona, or (2) from regasified Liquefied Natural Gas (LNG) from Energia Costa Azul (ECA) near Ensenada, North Baja California, Mexico. As discussed below, these sources of supply are expected to be more costly for customers than other sources.

In order to deliver gas from Ehrenberg, SDG&E customers or their suppliers must transport this gas over the North Baja system in southeast California, the Gasoducto Rosarito system across North Baja just south of the Mexican border, and then into the TGN system that delivers it to the Gas System at Otay Mesa. It is unknown at this time whether approximately 400 MMcfd of firm capacity on the North Baja path could be secured at all on all three pipelines on a long-term basis (*i.e.*, for a multi-year term) starting at some future, yet-to-be specified date.

The incremental cost for this additional transportation on an interruptible basis is approximately 30–40 cents per decatherm (Dth), assuming that interruptible capacity is available. For SDG&E

Currently one of the three pipelines is nearly fully subscribed, with only 25 MMcfd available.

customers currently served by these systems in Mexico and Arizona. Natural gas is the least-cost

customers to select this path for their gas supply, they would have to compete for capacity with

energy option for customers and electric generators served off these pipelines as the energy

alternatives in Baja California would be fuel oil or LNG from ECA, both which are more costly.

In order to deliver gas to Otay Mesa from ECA, SDG&E customers or their suppliers would have to enter into purchase agreements with the current holders of this gas supply: Shell Mexico Gas Natural, Gazprom Trading Mexico, or Sempra LNG. These customers and suppliers would compete for supply serving markets in Asia. Most of this supply is sold under long-term contracts indexed to crude oil prices in Japan, which are much higher than the SoCalGas City Gate price on a Btu basis, as explained in the next Section.

ii. Firm Pipeline Capacity Service Would be Costly to Build Out to the Level the Proposed Project Provides

In evaluating the resiliency benefit for the Otay Mesa Alternatives against the Proposed Project, or replacing Line 1600 with only a 16-inch diameter line (Alternatives C.3 and D in the Ruling and Cost-Effectiveness Analysis), there would need to be a reliable, cost-effective supply source to make up for the lost capacity during an extended, unplanned outage on Line 3010 or the Moreno Compressor Station. The only potential sources for this capacity would either be: (1) supply purchased at Otay Mesa, or (2) the transportation of gas supply purchased at Ehrenberg and transported to Otay Mesa using capacity on the North Baja Pipeline Systems.

The net cost to make these options viable is expected to be significant. As explained in the previous Section, it is unknown at this time whether approximately 400 MMcfd of firm

capacity on the North Baja path could be secured at all on all three pipelines on a long-term basis (*i.e.*, for a multi-year term) starting at some future, yet-to-be specified date. Assuming the 400 MMcfd of firm capacity could not be secured without pipeline expansions, the Utilities identified both a low end cost and a high end cost for building out capacity to provide service under the Otay Mesa Alternatives. The low end cost is based on existing rates for the pipelines and rates for facilities in service since 2002.⁸ The Utilities estimate that the low end cost would be approximately \$45 million per year based on current rates. The high end cost is based on more recent published pipeline costs for projects proposed or awarded for construction in Arizona and Northern Mexico. The high end cost assumes the North Baja system and Gasoducto Rosarito system would need to be looped from Ehrenberg to TGN. The estimated high end cost is approximately \$997 million (in 2012 dollars).

iii. Firm Pipeline Capacity Service is Subject to Future Competition for Capacity

The option of multi-year contracting for firm capacity across several pipelines on the North Baja Pipeline Systems to provide service to the Otay Mesa receipt point becomes even more tenuous in light of forecasts of demand on those pipelines in future years. Multiple sources (e.g., U.S. Energy Information Administration, Government of Mexico, Bentek, and Kinder Morgan) all predict substantial increases in pipeline export of natural gas to Mexico from the United States (U.S.), even after taking into account the potential increase in Mexican domestic gas production as a result of its oil and natural gas industry reforms. Thus, substantial future increases in exports of natural gas from the U.S. to Mexico are likely, and many of those

⁸ The annual cost of the low end cost for firm service was calculated by multiplying 400 MMcfd of throughput times the 30 cent per decatherm rate for 365 days per year. The firm rate is assumed to equal the interruptible rate that SoCalGas pays for service through these systems when required at a 100% load factor.

volumes are likely to flow to Mexico via El Paso's South Mainline. These substantial future flows to Mexico over the El Paso South Mainline will likely further reduce flows into Ehrenberg, making it difficult to rely on these supplies as an alternative to the Proposed Project. Under this scenario, pipeline supply would need to be secured and ready to flow every day, even though it may not be scheduled.

The Utilities understand that changes in the regulations in Mexico¹⁰ allow for available capacity to be assigned to other users through an open-season process. However, a capacity release would only be feasible if it were done on a long-term, permanent basis, for an amount of capacity equivalent to the rated capacity of the Proposed Project. Furthermore, based on recent usage history for the North Baja path, a firm capacity release would require gas suppliers serving much of the existing electric generation customers in the North Baja Region to opt for interruptible service to meet their customers' peak demand. Implementation of this option would represent a major change in operational policy for Sempra International and the Mexico energy agencies (Comisión Federal de Electricidad (CFE) and Comisión Reguladora de Energía (CRE)), since the North Baja Pipeline Systems path was constructed in part to provide reliable service to the North Baja electric generation customers that was not available on the SDG&E system. It is doubtful that Sempra International, CFE, and CRE would now agree to accept interruptible service so that SDG&E could increase its reliability.

⁹ See November 2013 presentation from Bentek Energy discussing future exports of natural gas from the U.S. to Mexico and stating "El Paso South Mainline Capacity Will Supply Mexico Demand," at 12, available at

http://www.platts.com/IM.Platts.Content/ProductsServices/ConferenceandEvents/2013/pc329/presentations/Rick Notarianni.pdf. See also September 2014 article mentioning "upgrades to enhance deliverability to the South Mainline," available at http://www.pipelineandgasjournal.com/kinder-morgan-export-natural-gas-mexico-el-paso-signs-contract-delivery.

¹⁰ COMISION REGULADORA DE ENERGIA RESOLUCIÓN Núm. RES/684/2015.

iv. If Alternatively Relying on LNG Supplies from ECA, This is a Costly Option

Alternatively, an even higher net cost for LNG-based supply would be expected if this turns out to be the only option. While LNG and crude oil prices are currently being reported as depressed, they are still significantly higher than the SoCalGas City Gate price on a Dth basis. ¹¹ The reported spot LNG price for Japan in February 2016 was \$8.25 per Dth. In comparison, the reported average SoCalGas City Gate price for the same month was under \$1.99 per Dth. ¹² Based on this information, even at these depressed prices, the net cost for this option would be more than double the SoCalGas City Gate price for each decatherm purchased.

v. The Cost Differential Between Otay Mesa and Other Utility Receipt Points Makes it Unattractive to Customers

Otay Mesa is one of the Utilities' 15 receipt points to schedule and deliver gas onto the Gas System, as described in Rate Schedule G-BTS. It is extremely rare, however, for deliveries to actually arrive there, due to factors described in the preceding Sections. Historically, this delivery point has been utilized by customers when there are unique maintenance issues preventing gas flow from the northern points in San Diego. For example, during eight scheduled weekend outages for pipeline maintenance work on Line 3010, which took place in October and November of 2011, customers were given the choice to either reduce usage to comply with a curtailment order or schedule deliveries of their supply needs to the Otay Mesa receipt point for the duration of the outage.

The Q3 2011 planned outages were scheduled to take advantage of weather and demand conditions that lessen the potential impact on service to customers. The planned outages were

¹¹ See https://ycharts.com/indicators/japan_liquefied_natural_gas_import_price.

¹² Natural Gas Intelligence (NGI): Actual average daily index price for the SoCal City Gate which was \$1.99 per MMBtu for February 2016.

scheduled weeks in advance to give customers and their suppliers plenty of time to make the decision to either reduce usage during the outages or buy gas for delivery at Otay Mesa. The outages were limited to a two-day duration and during weekends when overall system demand is expected to be lower than a comparable weekday. Finally, the outages were scheduled for a seasonal shoulder month period when both core and noncore demand are not expected to approach peak levels due to weather extremes. Applying this planning strategy to address a potential extended, *unplanned* outage of Line 3010 is inherently difficult, if not impossible, due to the uncertainty of when and for what duration the event would occur.

Absent an order to curtail, customers choose not to utilize the Otay Mesa receipt point. Although the Utilities may reasonably require their customers to either curtail or access this higher-priced option for planned outages of short durations, as explained by Mr. Bisi, this approach cannot reasonably be expected to address an extended, unplanned outage on Line 3010 or the Moreno Compressor Station. To address the potential for an extended, unplanned outage on Line 3010, the Proposed Project is the superior option. The Proposed Project will not force customers to purchase higher-priced gas supplies for delivery to the Otay Mesa receipt point, but would instead maintain the status quo for customers during an extended, unplanned outage.

IV. THE PROPOSED PROJECT WOULD AVOID ADDITIONAL COSTS OF ALTERNATIVE SUPPLIES ASSOCIATED WITH PRESSURE TESTING LINE 1600 (ALTERNATIVE B)

As explained by Mr. Bisi, Line 1600 contributes approximately 100 MMcfd of capacity to the SDG&E system when Line 3010 and the Moreno Compressor Station are in service. If Line 1600 is removed from service for pressure testing and repair of any leaks, even if the work is scheduled to occur in the most expedious manner possible, the loss of this capacity could lead

¹³ See Mr. Bisi's testimony, at 6-8.

to more frequent curtailments of EG demand in San Diego. This is particularly true if repairs must be scheduled during periods of high sendout when gas cannot be scheduled for delivery at Otay Mesa. This situation would most likely occur during the peak summer months when gas demand by EG customers located in North Baja California is highest. For the rest of the year, based on current demand levels, up to 100 MMcfd of interruptible capacity would be expected to be available upstream of Otay Mesa to address the loss of Line 1600 capacity while undergoing pressure testing and repair.

In contrast, if the pressure testing work for Line 1600 is scheduled to take place during the shoulder months to minimize the risk of possible outages to customers, then it is likely that customers or their suppliers could procure gas and capacity on the secondary market via the North Baja Pipeline Systems. As previously explained, this supply path via Otay Mesa would cost customers approximately 30–40 cents per Dth more than supply procured at Ehrenberg and moved through Rainbow Station (the supply path for the Proposed Project).

V. PSRP WILL BECOME PART OF THE INTEGRATED BACKBONE TRANSMISSION SYSTEM

A. Background of Utilities' BTS Business Model

The Utilities have been operating under a Commission-ordered market design that evolved from bundled gas service in the 1980s to the one in place today, which requires noncore customers and their suppliers to make their own choices regarding gas procurement and transportation options. Most significantly, in December 2006, the Commission adopted a system of firm access rights (FAR) that enables credit-qualified market participants to hold firm scheduling rights at specific receipt points and zones, and transport their supply on a firm basis

to the Utilities' City Gate.¹⁴ This system allows the FAR customer to determine the choice of gas supply that will flow through a receipt point based on the customer's FAR contract rights. Subsequently, in D.11-04-032, the Commission affirmed the superiority of the FAR system and adopted further refinements, including the renaming of FAR to BTS and the adoption of cost-based BTS rates.¹⁵

Under the BTS business model for the Utilities' integrated Gas System, pipelines are classified as "backbone" transmission if they receive gas from receipt points and transport it to the storage fields, local transmission system, or distribution system for delivery to end-use customers. Additionally, customers and suppliers are not required to schedule gas deliveries to a specified receipt point. They are instead free to contract for BTS capacity from any of the Utilities' available receipt points to deliver gas to meet end-use customer requirements. This "postage stamp" framework provides customers with the flexibility to select supply sources and corresponding upstream pipeline routes to get their gas to the Gas System according to their individual requirements. As a result, the receipt points delivering competitively-priced supply are the most widely scheduled by customers; conversely, receipt points with less competitively-priced supply are the least scheduled by customers.

B. PSRP Should be Recovered in BTS Rates

The Utilities' Gas System is comprised of a network of transmission lines that span from the San Joaquin Valley in central California to the California/Mexican border. The total length of the Utilities' transmission system is 3,057 miles of pipelines: 2,887 miles on the SoCalGas system and 170 miles on the SDG&E system. 67% of SoCalGas' pipeline mileage is classified as backbone transmission and 100% of SDG&E's pipeline mileage is classified as backbone

¹⁴ See D.06-12-031.

¹⁵ See D.11-04-032.

transmission. The backbone transmission system that is connected to SoCalGas' storage fields operates bi-directionally and receives gas from storage for transport to the local transmission system, distribution system, and/or for off-system delivery services. All of the Utilities' compressor stations are classified as backbone transmission facilities.

The PSRP should be treated as backbone transmission because 100% of the SDG&E system's pipeline mileage, including Line 1600, has already been deemed by the Commission to be backbone transmission. Consistent with the BTS business model adopted in D.11-04-032 and described above, the PSRP will replace Line 1600's "backbone" transmission function by receiving gas from the same Rainbow Station receipt point and transporting it to SDG&E's local transmission system and distribution system for delivery to end-use customers. In replacing Line 1600, PSRP will become part of the transmission backbone system and therefore the costs should be recovered in BTS rates, consistent with the treatment of all other backbone transmission costs. No customer or group of customers should be exempted from paying for these costs.

VI. QUALIFICATIONS

My name is Gwen Marelli. My business address is 555 West Fifth Street, Los Angeles, California 90013. I am employed by SoCalGas as Director of Energy Markets and Capacity Products for SoCalGas and SDG&E.

I received a Masters of Business Administration degree from Pepperdine University's Graziadio School of Business and Management in 1990 and a Bachelor of Science degree in Mechanical Engineering from the University of California, San Diego in 1986. I have been employed by SoCalGas since 1991. I have been in my current position since August of 2014. In my current position, I manage service to the largest gas customers of SoCalGas, specifically large electric generators, Enhanced Oil Recovery customers, and wholesale customers. I also manage the unbundled storage program, the California Energy Hub, and the Gas Scheduling Group. I oversee minimum flowing supply purchases and maintenance-related supply purchases, scheduling and nominations on the integrated SoCalGas and SDG&E transmission system, SoCalGas' Electronic Bulletin Board, and SoCalGas and SDG&E's interconnection and operational balancing agreements with suppliers delivering natural gas into our system. I also manage the Gas Transmission Planning Department for both utilities.

Prior to my current position, I spent time in various groups including Commercial & Industrial Services, Customer Operations, Customer Field Operations and Customer Research, Strategy and Communications. I joined SoCalGas in 1991 as an Energy Sales Engineer and held positions of increasing responsibility until my promotion to Director in 2006. Prior to joining SoCalGas, I held positions in the engineering discipline at Bechtel Western Power Company and McDonnell Douglas Corporation.

- I have previously testified before the Commission.
- This concludes my prepared direct testimony.