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## CHAPTER 2 – PROJECT PURPOSE AND NEED/PROJECT OBJECTIVES

The following section identifies the purpose, need, and objectives for the Pipeline Safety & Reliability Project (Proposed Project), as submitted by San Diego Gas & Electric Company (SDG&E) and Southern California Gas Company (SoCalGas)—hereinafter referred to as “the Applicants”—and as required by Section 15126.6(a) of the California Environmental Quality Act (CEQA) Guidelines.<sup>1</sup> As discussed in the following subsections, the primary purpose of the Proposed Project is to construct a new natural gas transmission pipeline and associated facilities that will advance three fundamental objectives for the integrated SDG&E and SoCalGas natural gas transmission system (Gas System) in San Diego County:

- implement pipeline safety requirements for existing Line 1600 and modernize the system with state-of-the-art materials,
- improve system reliability and resiliency by minimizing dependence on a single pipeline, and
- enhance operational flexibility to manage stress conditions by increasing system capacity.

### 2.0 TRANSMISSION SYSTEM OVERVIEW

As natural gas utility providers regulated by the CPUC, SDG&E and SoCalGas have an obligation to provide safe and reliable natural gas service to all natural gas customers in their respective service territories. SDG&E and SoCalGas own and operate an integrated gas transmission system consisting primarily of pipelines, compressor stations, storage facilities, and other appurtenant facilities. Through a network of pipelines, the integrated transmission system operated by SDG&E and SoCalGas transports and distributes natural gas throughout Southern California, including San Diego County. SDG&E’s current gas transmission system is shown in Figure 2-1: SDG&E Gas System Map.

San Diego County—the second largest county in California, and home of the eighth most populous city and 17th largest metropolitan area in the United States (U.S.)—had a growing population of more than 3.2 million people in 2014 and a regional economy of \$179 billion. San Diego is also home to the largest concentration of military in the world and the largest federal military workforce in the U.S. SDG&E provides natural gas service to this significant portion of California’s population and economy through over 868,000 natural gas meters in San Diego County.

Within San Diego County, natural gas is transported from the north to the south through two pipelines: Line 1600, a 16-inch-diameter pipeline constructed in 1949, and Line 3010, a 30-inch-diameter pipeline constructed in 1960. These pipelines provide a current total capacity to meet 630 million cubic feet per day (MMcfd) of customer demand in the winter operating season, and

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<sup>1</sup> The Applicants understand that the California Public Utilities Commission (CPUC) will evaluate the Proposed Project’s purpose and need in a formal proceeding administered by an Administrative Law Judge, independent from CEQA review. (See California Public Utilities Code Section 1001 et seq.) The Applicants anticipate that this formal proceeding to evaluate the Proposed Project’s purpose and need will occur prior to the issuance of the Draft Environmental Impact Report.

590 MMcf/d of customer demand in the summer operating season, assuming all transmission assets (i.e., pipelines and compression) are available. With compression at the Moreno Compressor Station, Line 1600 provides approximately 10 percent of the capacity and Line 3010 provides approximately 90 percent.<sup>2</sup>

## 2.1 PROPOSED PROJECT OBJECTIVES

The objectives of the Proposed Project are summarized as follows:

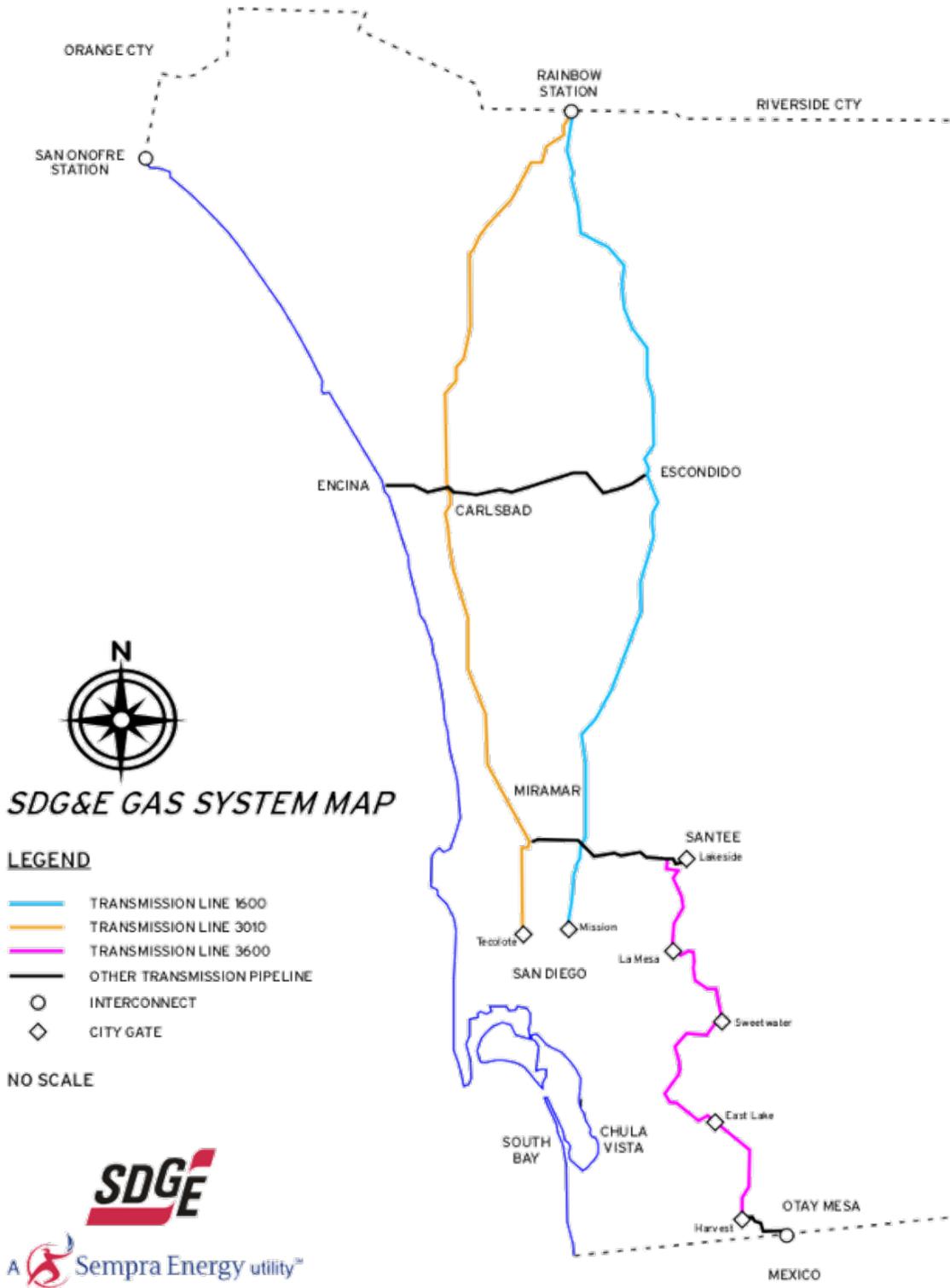
1. **Implement Pipeline Safety Requirements for Existing Line 1600 and Modernize the System with State-of-the-Art Materials:** Enable the Applicants to comply with the CPUC-approved Pipeline Safety Enhancement Plan (PSEP) by replacing Line 1600 with a new gas transmission pipeline as soon as is practicable. Construction of the new line will enable the use of Line 1600 for distribution while operating at a lower pressure. This replacement will not only comply with the PSEP, but it will also add a greater margin of safety by replacing Line 1600's transmission function with a new pipeline by using modern, state-of-the-art materials. In addition, replacement would avoid any potential customer impacts associated with pressure testing Line 1600.
2. **Improve System Reliability and Resiliency<sup>3</sup> by Minimizing Dependence on a Single Pipeline:** Simultaneously improve the reliability and resiliency of the Gas System by replacing Line 1600 with a 36-inch-diameter gas transmission pipeline so that core and noncore customers will continue to receive gas service in San Diego in the event of a planned or unplanned service reduction or outage of the existing 30-inch-diameter Line 3010 or the Moreno Compressor Station. San Diego County is essentially completely reliant on the compressor station in the City of Moreno Valley and Line 3010, which together provide approximately 90 percent of SDG&E's capacity. The Applicants are not aware of any other major metropolitan area that is so dependent on a single pipeline. A system outage on Line 3010 or the Moreno Compressor Station would constrain available capacity in San Diego, which may lead to gas curtailments. This would be alleviated with the new 36-inch-diameter line providing resiliency for both Line 3010 and the Moreno Compressor Station.

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<sup>2</sup> The natural gas pipe network includes a SoCalGas pipeline that distributes gas along the Pacific coast, with product flowing from Orange County into San Diego County. This pipeline operates as part of the coastal distribution system, provides natural gas to the local area, and does not transport gas within the larger San Diego region. Less than one percent of the SDG&E system capacity enters the county through this pipeline.

<sup>3</sup> The term "resilience" means the ability to prepare for and adapt to changing conditions, and withstand and recover rapidly from disruptions. Resilience includes the ability to withstand and recover from deliberate attacks, accidents, or naturally occurring threats or incidents. Press Release (dated February 12, 2013) Presidential Policy Directive – Critical Infrastructure Security and Resilience, available at <https://www.whitehouse.gov/the-press-office/2013/02/12/presidential-policy-directive-critical-infrastructure-security-and-resil>. The Applicants use the term "resiliency" and "redundancy" interchangeably throughout the Proponent's Environmental Assessment because a redundant transmission pipeline enables a gas system to be resilient.

**Figure 2-1: SDG&E Gas System Map**





3. **Enhance Operational Flexibility to Manage Stress Conditions by Increasing System Capacity:** Simultaneously increase the transmission capacity of the Gas System in San Diego County by approximately 200 MMcfd as a result of the PSEP replacement line being 36 inches in diameter so that the Applicants can reliably manage the fluctuating peak demand of core and noncore customers, including electric generation (EG) and clean transportation. The new line would provide incremental pipeline capacity that would give flexibility to operate the SDG&E system by expanding the options available to handle stress conditions on a daily and hourly basis that put system integrity and customer service at risk.

## 2.2 SAFETY, RELIABILITY AND RESILIENCY, AND OPERATIONAL FLEXIBILITY AND CAPACITY

The fundamental purpose of the Proposed Project is to continue to meet the obligation to provide safe and reliable natural gas service. The need for a new pipeline is demonstrated by new pipeline safety laws; an understanding of the current and increasing importance of natural gas reliability for core customers, transportation-only noncore customers, and the increasing interdependency of natural gas and electricity; and the current and forecasted capacity requirements of the SDG&E territory and the gas transmission system.

The Applicants have reviewed the existing gas infrastructure and determined that the installation of an approximately 47-mile-long, 36-inch-diameter transmission pipeline from the Rainbow Metering Station to Marine Corps Air Station (MCAS) Miramar is prudent and will best address these needs. The new 36-inch-diameter pipeline will implement the Applicants' PSEP for Line 1600 and will address pipeline safety, reliability and resiliency and operational flexibility needs. The CPUC approved the first phase of the PSEP in 2014. Consistent with the PSEP and state law requirements, the Applicants seek to replace Line 1600 with a new transmission line, which will enhance the safety, reliability, and operational flexibility of the system.

### 2.2.0 Pipeline Safety

The California Natural Gas Pipeline Safety Act of 2011 added new regulations for intrastate pipelines (e.g., Section 958 of the California Public Utilities Code) that require pressure testing after construction or replacement of all natural gas intrastate transmission line segments that were not pressure tested previously or that lack sufficient documentation of a pressure test. The current practice is to perform a post-construction pressure test prior to placing a pipeline in service. During the test, the pipeline is pressurized to a threshold above the maximum pressure the pipeline is allowed to achieve in operation, and a safety margin is established for the pressure-carrying capability of the constructed pipeline. This practice was not established in 1949 when Line 1600 was constructed.<sup>4</sup>

In Decision 14-06-007, the CPUC adopted the Applicants' PSEP, including the approach to prioritize the testing or replacement of transmission pipelines to comply with Section 958 of the

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<sup>4</sup> The 16-inch pipe segments of Line 1600 have been in-line inspected with tools to detect corrosion, manufacturing defects, and other anomalies. The operating history and the more than 50 excavations that have been completed verify the integrity of the pipeline and serve to validate its integrity in distribution service. A short segment of Line 1600 that is 14 inches in diameter is scheduled for in-line inspection in the fourth quarter of 2015.

California Public Utilities Code. The approved plan calls for prioritizing pipelines that are located in populated areas and testing or replacing them prior to those pipelines operating in sparsely populated areas. Line 1600 is located within populated areas and therefore prioritized to be completed during Phase 1 of the PSEP. However, due to the scope of the Proposed Project, it is expected to be the last Phase 1 project completed.

The PSEP program requires that Line 1600 must be pressure tested or replaced. Commissioning of the new replacement pipeline will enable the conversion of Line 1600 to distribution service by lowering the maximum operating pressure of the pipeline, thereby satisfying the PSEP requirements and providing a greater margin of safety compared to pressure testing the pipeline and continuing to operate the 1949 vintage pipeline at higher pressures. This pressure reduction will eliminate the need to pressure test Line 1600, while complying with all safety requirements of the PSEP. The new pipeline will be pressure tested prior to being placed into service, and thus, will be compliant with Section 958 of the California Public Utilities Code and CPUC pipeline safety requirements.

### **2.2.1 Reliability and Resiliency**

As prudent system operators, the Applicants design, construct, maintain, and inspect facilities to minimize and/or prevent both planned and unplanned reductions in service or outages. Construction of temporary bypass piping or work on pipelines operating at a reduced pressure is routinely done to keep the pipelines in service and to minimize impacts to customers. However, pipelines can and do experience both planned and unplanned reductions in service levels and outages. The Gas System could suffer an unplanned reduction in service or outage in response to many threats, including excavation damage; corrosion; compressor station-related equipment failure; automatic valve malfunction; weather; and other physical/operational, technical/cyber, natural, and man-made events.

Interruption of natural gas service may have significant consequences, including the unplanned loss of electric service to customers; negative impact on business operations; interruption of service for cooking, heating, and hot water; and inability to fuel private and public transportation that is reliant on natural gas. While curtailments are used to shed load and prevent the natural gas system from being depleted, if a pipeline is depleted of natural gas and air enters the system, restoring natural gas service is an involved and lengthy process due to the requirement to purge the system under controlled conditions.

San Diego essentially is reliant on the compressor station in the City of Moreno Valley and Line 3010, which together provide approximately 90 percent of SDG&E's capacity. The Applicants are not aware of any other major metropolitan area that is so dependent on a single pipeline. A complete outage of Line 3010 would result in a loss of gas service to SDG&E's core and noncore customers. A partial outage due to a loss of compression or pressure reduction on the pipeline is very likely to impact noncore customers and may affect core customers, depending on its scope, location, and duration. From an electric reliability perspective, a single point failure on the gas system could place firm electric load at risk due to electric generation curtailments. The new 36-inch-diameter pipeline provides redundancy for both compression and pipeline service interruptions and addresses the single point of failure scenario.

With construction of a new 36-inch pipeline and repurposing of Line 1600, the Gas System will be able to deliver a minimum of 530 MMcfd should either Line 3010 or the proposed 36-inch-diameter line be shut down for either planned or unplanned reasons, as long as compression assets are available. The new Gas System will also be able to deliver up to 630 MMcfd should the compression equipment at Moreno Compressor Station go completely off-line. Currently, the shutdown of Line 3010 would limit the supply to the existing 16-inch pipeline, which is a maximum of 100 to 150 MMcfd, assuming all compression assets are available and alternative sources at Otay Mesa cannot be relied upon; this is insufficient to serve even the core demand in San Diego alone, except during the hottest summer months.

### **2.2.2 Operational Flexibility and Capacity**

Constructing a 36-inch-diameter pipeline would add more capacity, which would enable improved responsiveness to meet daily and increasingly volatile hourly peak demand requirements on an intermediate and long-term basis. As regulated utilities, SDG&E and SoCalGas are obligated to provide service as the population grows and new customers enter their service territories. This further increases the connected load on the system. As depicted in Attachment 2-A: Historic Aerial Maps, population, land use, and development have notably increased in San Diego County since Line 1600 and Line 3010 were constructed in the 1940s and 1960s, respectively.

There has been no expansion of capacity in San Diego County for 15 years. Today, connected load far exceeds the capacity of the system. Within the past several years, the growth of intermittent renewable resources and loss of electric generation at San Onofre Nuclear Generating Station has resulted in increased reliance on natural gas-fired EG, including new plants that will come online utilizing quick-start technologies. Despite predicted declines in natural gas demand on an annual basis, the Applicants are experiencing higher demand on an hourly or daily basis. Thus, the additional capacity would be beneficial in serving EG demand at levels greater than expected or forecasted on a daily or hourly basis. Although such peak conditions are not typically considered in the development of formal demand forecasts, these conditions frequently occur on an operational basis, and are anticipated to become more common as weather conditions, as well as the use of natural gas to support renewable electric generation, continue to change. With the Proposed Project, the capacity on the San Diego gas system will be increased by approximately 30 percent—or 200 MMcfd (assuming all transmission pipeline and compression assets are available)—on a daily basis, allowing for elevated demand conditions. With the Proposed Project, the system will be able to serve 830 MMcfd of customer demand in the winter operating season, and 790 MMcfd of customer demand in the summer operating season.

## **2.3 CONCLUSION**

The Proposed Project fully satisfies the PSEP requirements for Line 1600, modernizes the system with state-of-the-art materials, improves system reliability and resiliency, and enhances operational flexibility to manage stress conditions by increasing system capacity. In light of the current natural gas system design and projected demand, and consistent with the CPUC’s direction to ensure “the overall adequacy of the intrastate infrastructure not only to meet normal

demand, but also to respond to emergencies,”<sup>5</sup> the Applicants have determined that the Proposed Project is needed to provide reliable gas and electric service to customers, now and in the future.

## 2.4 APPLICANTS’ ROUTING CRITERIA

The Applicants have determined that a new 36-inch-diameter pipeline is needed in order to satisfy the Proposed Project objectives of safety, reliability and resiliency, operational flexibility and capacity in a reasonable and prudent manner. As part of its review of this Application, the CPUC must give consideration to “community values,” “recreational and park areas,” “historical and aesthetic values,” and “influence on the environment,” and the CPUC will ultimately determine whether the Proposed Project is of public convenience and necessity.<sup>6</sup> With these considerations in mind, the Applicants developed a set of guiding principles or “routing criteria” for the purpose of identifying a specific route—referred to as the “Proposed Route”—to include in the Application.

The Applicants used the following routing criteria to identify the Proposed Route:

- implement new pipeline safety requirements for existing Line 1600 as expeditiously as possible;
- follow generally accepted principles for siting infrastructure, such as the “Garamendi Principles” for electric transmission infrastructure siting<sup>7</sup>;
- avoid unnecessary impacts to the environment;
- avoid unnecessary acquisition of private property;
- avoid impacts to mission-critical operations at MCAS Miramar; and
- meet current and near-term energy needs in a cost-effective and efficient manner.

The Proposed Route meets the fundamental objectives of the Proposed Project in a manner that the Applicants believe reasonably balances the routing criteria and is “feasible,” as defined by CEQA. The Proposed Route was selected over other alternatives because it is located predominately within developed areas and existing public rights-of-way (i.e., streets and roadways); minimizes impacts to natural habitats, sensitive species, and other environmental resources; reflects preliminary input from MCAS Miramar on routing alternatives; and avoids additional costs and time delays associated with the larger Proposed Project scope, among other considerations.

The Applicants understand that the CPUC will independently address the potential environmental impacts of the Proposed Project in the course of its review of this Application, and the Applicants are open to route modifications that are determined by the CPUC to be environmentally superior to the Proposed Project and “feasible,” as defined by CEQA. The Applicants further recognize that any new construction will necessarily result in temporary disruptions to the communities located along the pipeline route. For this reason, the Applicants

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<sup>5</sup> The CPUC provided this direction in Decision 06-09-039 at 61.

<sup>6</sup> California Public Utilities Code Section 1002(a) provides direction on determining public convenience and necessity.

<sup>7</sup> The Garamendi Principles and other infrastructure siting principles used to identify the Proposed Route are further explained in Chapter 5 – Discussion of Significant Impacts and Project Alternatives.

propose to work with communities and the CPUC to identify public purpose improvements and benefits that can be reasonably incorporated into the Proposed Project to ensure adequate consideration of “community values.” To the extent feasible, reasonable, and prudent in the view of the CPUC, the Applicants will work with the CPUC and the public to identify potential community enhancements that can be completed within the Proposed Project area that are above and beyond the mitigation measures required by CEQA.



**ATTACHMENT 2-A: HISTORIC AERIAL MAPS**