Application No: A.13-12-013
Exhibit No.:
Witness: David Buczkowski

Application of Southern California Gas Company (U 904 G) and San Diego Gas & Electric Company (U 902 G) For Authority To Recover North-South Project Revenue Requirement In Customer Rates And For Approval Of Related Cost Allocation And Rate Design Proposals	A.13-12-013 (Filed December 20, 2013)

UPDATED SUPPLEMENTAL DIRECT TESTIMONY OF

DAVID BUCZKOWSKI

SAN DIEGO GAS & ELECTRIC COMPANY

AND

SOUTHERN CALIFORNIA GAS COMPANY

BEFORE THE PUBLIC UTILITIES COMMISSION
OF THE STATE OF CALIFORNIA

November 12, 2014

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UPDATED SUPPLEMENTAL DIRECT TESTIMONY OF DAVID BUCZKOWSKI

I. PURPOSE

The purpose of my supplemental direct testimony on behalf of Southern California Gas Company (SoCalGas) and San Diego Gas & Electric Company (SDG&E) is to respond to ALJ Long's request for a more detailed description of the project and schedule in support of the North-South Project Application.

II. PROJECT DEVELOPMENT AND COST ESTIMATION

Design and cost estimates for the North-South Project were developed by SoCalGas personnel in the Major Projects, Engineering, Environmental and Gas Transmission Planning departments, supplemented with work done by consultants, all working under my direction. SoCalGas contracted with consultants for specific tasks to support SoCalGas personnel in developing the updated scope, schedule and cost estimates to design, permit and construct the components of the North-South Project. These engineering, consulting, and construction management firms provide integrated services to the energy, environmental and infrastructure markets. They provided expertise in pipeline engineering and design, and compressor station engineering and design. For example, URS updated the compressor station horsepower and compressor requirements along with identifying turbine/compressor packages and costs that would meet the preliminary design requirements set forth by SoCalGas. In other instances, SoCalGas and SDG&E did the work internally and this information was provided to consultants. For example, SoCalGas provided the emissions control approach, and emissions equipment requirements for the Adelanto Compressor Station turbines.

The design and development work was led by SoCalGas employees with support from consultants. SoCalGas compiled a detailed project report (Report) that includes the project

development and design work done by SoCalGas and supported by consultants. A portion of this Report is Attachment A to this testimony, and I am sponsoring it as part of my testimony.

The Report includes the following topics: 1) project summary, 2) identification of project components, 3) key assumptions, 4) route descriptions, 5) engineering and design summaries, 6) environmental overview, and 7) cost estimates. In order to preserve the safety and integrity of our system, certain sensitive system information has been redacted from Attachment A. The Report also provides route maps, topographic maps, geological maps, land ownership maps, compressor station and pressure limiting station drawings, cultural resources summary, crossings list and an environmental map book. For security reasons, this information is also not included in Attachment A.

The proposed North-South Project consists of two major components: Adelanto to Moreno Pipeline and Adelanto Compressor Station. Both of these project components are addressed below, and in Attachment A.

The original Report included as Attachment A to my supplemental testimony filed on March 28, 2014 was jointly developed by SoCalGas and TRC. The report contained very detailed descriptions of the project scope, cost details, drawings, maps, and other information that were used as the basis for the cost estimate included in my original direct testimony. We have made significant progress in engineering, design, and planning resulting in changes to this detailed information. The extent of the development and the creation of new and updated detailed maps and drawings warranted a complete updating of the Report in Attachment A to this updated supplemental testimony.

III. ADELANTO TO MORENO PIPELINE

The proposed Adelanto to Moreno pipeline would begin at the compressor station in Adelanto, California, in San Bernardino County, and would run south and parallel to an existing

SoCalGas transmission line for approximately 13 miles primarily within a dedicated road right-of-way. This area is mostly undeveloped with light residential towards the south end of the section. Construction in this area would be in close proximity to a SoCalGas transmission pipeline, two Kinder Morgan refined fuel lines, and sewer and utility lines serving residential customers. The pipeline would cross State Route 18, the California Aqueduct and the Union Pacific Railroad. These crossings would be accomplished by boring under the road/railroad/aqueduct/flood control channel without disturbing the structure above. This technique requires establishing a bore pit on one side of the structure and a receiving pit on the other side at depths that allow for pushing a pipe or drilling a pipe casing straight between the two pits under the structure.

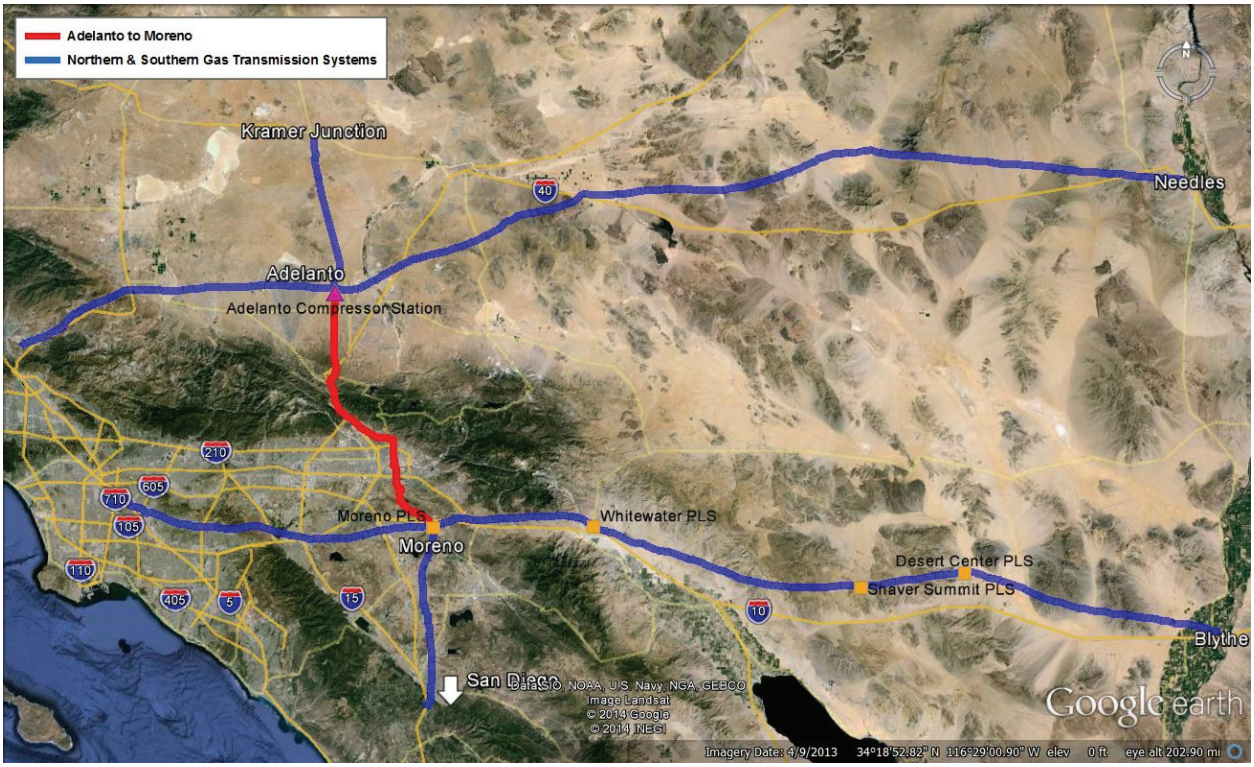
The pipeline would next enter the San Bernardino National Forest and traverse south through the Cajon Pass through the San Bernardino Mountains down to the community of Devore. The Cajon Pass is a mountain pass between the San Bernardino Mountains and the San Gabriel Mountains in linking Victor Valley with the Greater San Bernardino area. The pipeline would parallel an existing SoCalGas transmission pipeline where feasible. This section is approximately 8 miles and would be in a designated Federal Energy Corridor with two existing SoCalGas transmission pipelines and Southern California Edison electric transmission power lines. The Cajon Pass is also a major transportation corridor with Interstate 15 and Burlington Northern and Santa Fe Railroad, and Southern Pacific Railroad. The pipeline would cross Interstate 15 at two locations, the above railroad tracks and State Route 138. There is one large creek crossing at Cleghorn Creek. These crossings would be made using conventional boring techniques described above.

Mountainous terrain, steep slopes and potential environmental constraints along with crossing Interstate 15, State Route 138 and three railroad crossings make this the most

challenging section of the pipeline to construct and would require significant coordination with United States Forest Service, Caltrans, and other resource agencies.

Set forth below in Figure 1 is a map of the current proposed route for the Adelanto to Moreno Pipeline:

Figure 1



The pipeline would exit the San Bernardino National Forest at the community of Devore and travels south 7 miles along highway US 66 before entering an urban setting. This segment of the pipeline crosses the Interstate (I)-15 freeway and the 215/15 interchange.

The pipeline would primarily be routed along existing streets and public right-of-ways through urban areas in the cities of San Bernardino, Loma Linda, and Colton for 26 miles. In this portion of the pipeline route, there are two major highway crossings, State Route 210 and Interstate 10. The pipeline also crosses the Santa Ana River and several improved flood control channels. A horizontal directional drill technique would be employed to cross under the Santa

Ana River. The horizontal directional drill method employs a surface launch drilling rig that is used to install a pipe in an arc along a prescribed path, under the river in this case, with minimal surface impacts. The flood control channels would be crossed using conventional bore technique described above.

The pipeline would then leave the urban setting and follow paved and unpaved roads through a low density residential development before entering uninhabited mountainous terrain in the area south of the city of Loma Linda. Finally, the pipeline would travel through a sparsely developed area in Moreno Valley in Riverside County and terminate at SoCalGas' Moreno Valley Pressure Limiting Station. Along this final 9 mile portion of the pipeline, there is one major highway crossing, State Route 60, and no major river crossings or major flood control channels.

Cost estimates were discussed in my updated direct testimony. These estimates are based on the route analysis, miles of pipeline, key construction parameters and limitations, land ownership, and environmental considerations. Material estimates are based on feet of pipe, planned number of valves, expected number of pipe elbows (45° & 90°), pig launchers and receivers and other materials. SoCalGas specified 36" pipe diameter, 0.625" wall thickness, and API 5L X70 pipe grade.

Construction estimates are based on the number of feet by type of terrain that range from cross country/open space to highly congested paved city streets and costs to lay pipe in different terrain conditions.

Land costs are based on land use, easements, and temporary construction easements, access roads and lay down yards. Environmental costs are based on expected CEQA and NEPA compliance costs, survey requirements, and construction monitoring and mitigation costs for the

pipeline. Detailed cost estimate schedules for Adelanto to Moreno pipeline are in the Report, at Attachment VIII, pages 2 through 33.

IV. ADELANTO COMPRESSOR STATION

The Adelanto Compressor Station would be upgraded from the current single gas-turbine driven compressor installed in the 1970's to modern natural gas turbine driven compressors providing approximately 30,000 horse power of compression and capable of delivering 800 million cubic feet per day (MMcfd) of natural gas at 850 psig pressure for transportation to the Moreno Valley Pressure Limiting Station. The design is based on an operating range varying from 100 MMcfd to 800 MMcfd, with a minimum inlet suction pressure of 475 psig and a maximum 850 psig station discharge pressure as provided by the SoCalGas/SDG&E Gas Transmission Planning Department.

To achieve these design parameters, SoCalGas contracted URS to conduct a detailed compressor and gas turbine analysis to further evaluate and optimize compressor package configuration alternatives including requests for bids from GE, Solar, and Siemens. The unit configurations and station horsepower were developed by URS. These configurations were developed to satisfy the operating conditions of the compressor station.

Two Solar Mars 100 turbines with C453 three stage compressors and two Taurus60[1] with C404 three stage compressors are proposed for the turbine/compression package that would provide one of the best solutions for meeting all compressor station flow requirements. Each Mars 100 turbine would provide approximately 10,900 horsepower at site conditions of 3000 ft. elevation and 110° F ambient temperature. Each Taurus 60 turbine would provide approximately 5,700 horsepower at site conditions of 3000 ft. elevation and 110° F ambient temperature. This

[1] Solar Taurus 70 turbines with five stage compressors are under investigation as an alternative to the Taurus 60 turbines and within the same cost range.

configuration provides a maximum flow rate of 800 MMcfd at 475 psig suction pressure and 850 psig discharge pressure. This configuration was used to develop engineering, air emissions and permitting requirements and equipment and construction cost estimates.

The SoCalGas property parcel where the existing compressor station resides has sufficient room to install new compressors, auxiliary equipment and a building south of the existing station, however, additional land acquisition is planned for ancillary facilities - see Figure 2 below. The existing station would remain in place and in use during construction.

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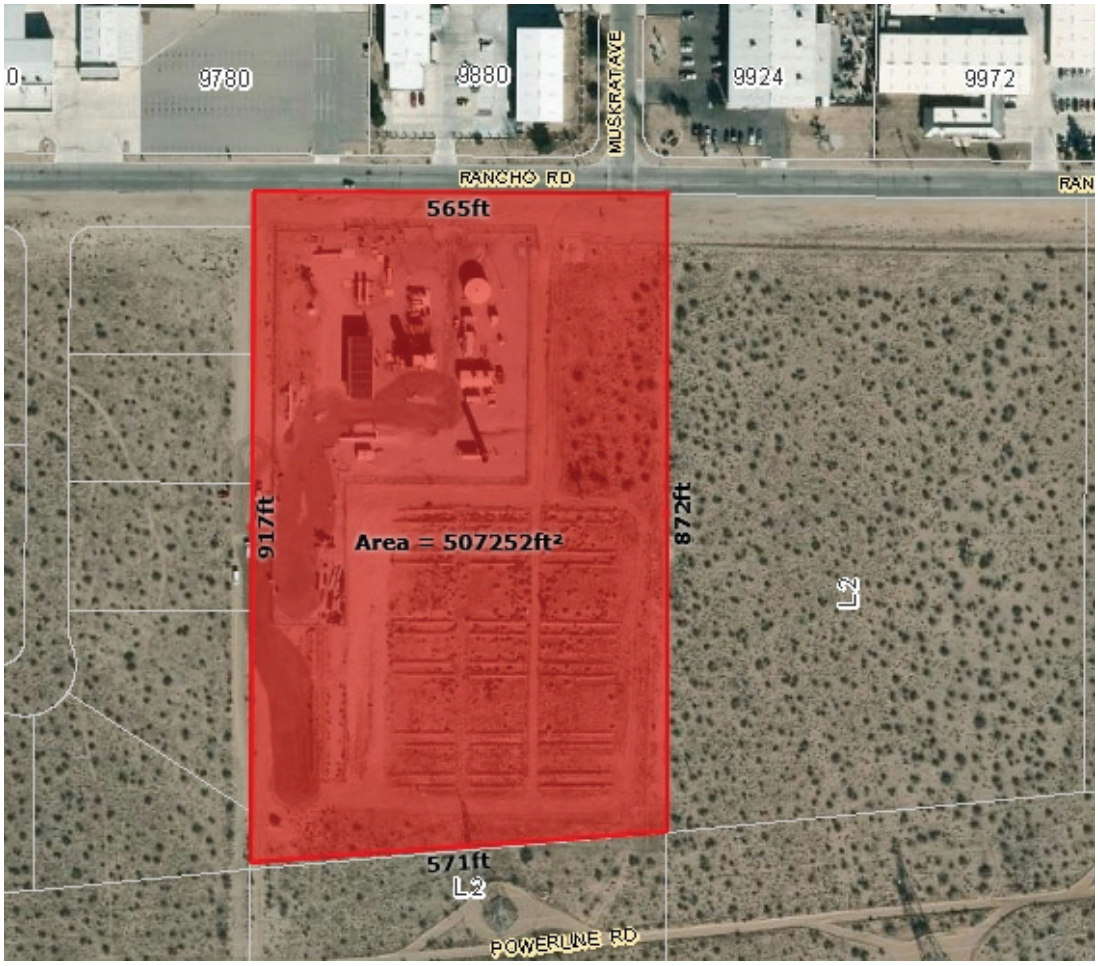
Figure 2



The Adelanto Compressor Station upgrades would include gas piping, on-site power generation, and above-ground vessels. The new gas cooling system would be sized to match flow rates and anticipated compressor discharge gas temperature. The gas cooling would be air coolers and heat exchangers.

The entire turbine/compressor package would be housed in an insulated pre-engineered metal building that would provide weather protection and sound attenuation for both the turbines and compressors. The compressor building would include a 10-ton overhead crane for moving heavy components during station maintenance activities. A perimeter block wall would also be

constructed around the entire property providing both security and noise abatement. See Compressor Building Diagram in Report, at Attachment V.

An Operations building would be approximately 40-feet wide by 80-feet long by 16-feet high and would house the Operations Room including galley kitchen and restroom, electric room for motor control center, uninterruptible power supply and batteries, power transformer, and communications equipment. A separate building will house air compressor equipment and a generator. Two additional buildings have been added for spare parts and workshop and fire suppression equipment. Finally a water tank has also been added. See Station Plan in Report, at Attachment V, Exhibit 5.

The Adelanto Compressor Station is in the Mojave Desert Air Basin and would be subject to Mojave Desert Air Quality Management District (MDAQMD) rules, regulations and permit requirements. As stated in my updated direct testimony, the compressor station would be subject to Title V permit requirements as a federal major source.

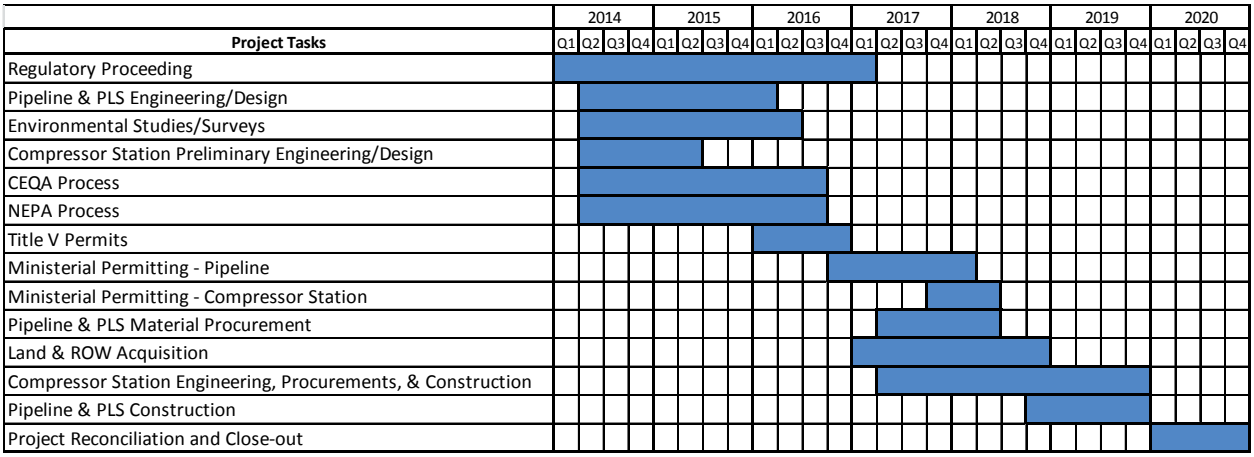
Cost estimates were discussed in my updated direct testimony. Updated Mars 100 and Taurus 60 Compressor Packages costs are based on an estimate provided by the turbine manufacturer. SoCalGas and URS developed valve, piping, and auxiliary equipment requirements and URS worked with vendors on developing equipment cost estimates. URS prepared cost estimates using several estimating tools including Aspen Capital Cost Estimator (ACCE),[2] current published union labor rates, and URS added allowances for scope items not included in the ACCE. SoCalGas developed emission credits cost estimates. Detailed cost estimate schedules are in the Report, at Attachment VIII, pages 35 through 46.

[2] AspenTech - http://www.aspentech.com/products/aspen-kbase.aspx

V. PROJECT SCHEDULE

Set forth below in Figure 3 is the updated project schedule that we have used in developing our cost estimates.

Figure 3



As stated in my updated direct testimony, SoCalGas and SDG&E estimate that it would take approximately six years to permit, engineer/design, procure, construct and place the new assets in service. Figure 3 illustrates at a high level the major activities that comprise the overall project schedule. Regulatory approval of the North-South Project application is assumed to occur by March of 2017, six months after CEQA and NEPA reviews have been completed. The initial years of the project focus primarily on the preliminary engineering and design work, as well as the environmental surveys and data collection that are necessary to develop and support the environmental reviews and permit applications. These activities include detailed reviews and mapping of the pipeline routes and finalization of the compression equipment types and expected emissions. These activities would run concurrent with the North-South Project application.

The environmental clearance process is anticipated to last two years. The assumption for the schedule depicted above, and as stated in my updated direct testimony, is that receipt of final

environmental clearance would precede material procurement, land and right-of-way acquisition, and awarding of any major construction contracts.

Prior to any construction activity commencing at the compressor station, the Title V permit must be amended. The basis of this schedule is that the permit amendment is received one year after submitting the amendment application. Prior to the MDAQMD issuing an amended Title V permit, SoCalGas would need to purchase the necessary emissions reduction credits.

Pipeline materials, equipment and significant land acquisitions would not begin until CEQA and NEPA are complete and the application is approved. Adelanto Compressor Station final engineering, equipment and materials procurement and construction would begin once CEQA and NEPA are complete, the application is approved and the Title V permit amendment is complete.

On October 17, 2013, SoCalGas received approval from its Board of Directors to pursue the North-South Project Application. SoCalGas also reviewed with its Board of Directors at the October 17, 2013 meeting the plan to spend approximately $10MM to commence preliminary engineering, design, survey, and permitting activities relating to the proposed North-South Project. The Sempra Energy Board of Directors was also briefed on the application.

SoCalGas will need an additional review and approval – an "Authorization for Expenditure" or "AFE" -- from the Sempra Board of Directors and SoCalGas Board of Directors prior to commitment of expenditures for procurement and construction. Depending on the expenditure level, separate Board of Directors review and approvals will also be required for significant purchase orders and construction contracts related to the North-South Project. Such authorizations would be sought by utility management prior to the particular expenditures covered by the AFE.

This concludes my updated supplemental prepared direct testimony.