

Application No: A.17-03-021
Exhibit No.: _____
Witness: R. Gonzalez

Application of Southern California Gas Company
(U 904 G) and San Diego Gas & Electric Company
(U 902 G) for (A) Approval of the Forecasted
Revenue Requirement Associated with Certain
Pipeline Safety Enhancement Plan Projects and
Associated Rate Recovery, and (B) Authority To
Modify and Create Certain Balancing Accounts

Application 17-03-021

REBUTTAL TESTIMONY OF
RONN GONZALEZ
ON BEHALF OF
SOUTHERN CALIFORNIA GAS COMPANY
AND
SAN DIEGO GAS & ELECTRIC COMPANY

BEFORE THE PUBLIC UTILITIES COMMISSION
OF THE STATE OF CALIFORNIA

January 22, 2018

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1 **I. PURPOSE AND OVERVIEW OF TESTIMONY**

2 The purpose of my testimony is to respond to the December 11, 2017 Direct Testimony
3 of Catherine E. Yap on behalf of The Utility Reform Network (TURN) and the Southern
4 California Generation Coalition (SCGC) and the December 11, 2017 Direct Testimony of Nils
5 Stannik, Nusrat Molla, and Matt Yunge of the Office of Ratepayer Advocates (ORA; with
6 TURN and SCGC, Intervenors).

7 Specifically, my testimony responds to TURN and SCGC’s proposal that the forecasted
8 costs requested by SoCalGas and SDG&E be reduced by \$44.29 million in Capital and \$24.25
9 million in Operating and Maintenance (O&M) based on TURN and SCGC’s benchmarking
10 analysis, which compares recorded costs for completed Southern California Gas Company
11 (SoCalGas) and San Diego Gas and Electric (SDG&E) Pipeline Safety Enhancement Plan
12 (PSEP) projects with forecasted costs included in this Application.¹ My testimony also addresses
13 ORA’s proposal that the forecasted costs requested by SoCalGas and SDG&E be reduced by \$42
14 million in Capital and \$22.7 million in O&M based on a statistical model using a sample of
15 completed California utility pipeline replacement projects and pressure test projects.^{2 3}

16 Both ORA’s and TURN and SCGC’s methods for predicting project costs significantly
17 underestimate the costs to complete the 12 projects in this Application. Additionally, the cost
18 caps proposed by both ORA and TURN/SCGC are patently unfair to SoCalGas and SDG&E,
19 who are required by the Commission and state law to execute the proposed projects in
20 furtherance of safety enhancement.⁴

¹ TURN/SCGC Direct Testimony (Yap) at 2.

² ORA-01 Prepared Testimony Executive Summary (Stannik) at 4-5.

³ ORA does not include forecast costs for Line 36-37 Section 12 or Line 36-1002. Moreover, ORA’s proposed forecasts do not account for Allowance For Funds Used During Construction (AFUDC) and Property Tax, which are included in Applicants’ forecasts.

⁴ D.11-06-017 at 18,19; Public Utilities Code §§ 957, 958.

1 My testimony demonstrates the shortcomings of both TURN and SCGC's and ORA's
2 attempts to apply benchmarks to the detailed project cost estimates individually developed by
3 SoCalGas and SDG&E for each of the twelve projects included in this Application. TURN and
4 SCGC's and ORA's analyses do not take into consideration key components and other unique
5 project-specific factors that drive costs. These speculative proposals should not be adopted over
6 the forecasts provided by Applicants because SoCalGas and SDG&E's robust estimates consider
7 the key forecasting components of each project and use cost inputs based on their actual
8 experiences in executing PSEP.

9 To illustrate: ORA's and TURN and SCGC's proposed methods are akin to attempting to
10 determine my height by extrapolating an average from a data set composed of the varying
11 heights of some (but not all) adult male Californians; whereas SoCalGas and SDG&E's proposed
12 method is akin to taking the average height estimated by people who have met me. In other
13 words, ORA's and TURN and SCGC's methods are random, somewhat localized guesses –
14 albeit guesses that are derived scientifically – and SoCalGas and SDG&E's methods are
15 informed estimates. While ORA's and TURN and SCGC's methods might be appropriate to
16 estimate the height of an unspecified adult male in California, SoCalGas and SDG&E's methods
17 are more appropriate to determine the height of a known individual. Neither method is expected
18 to result in the exact actual cost of executing PSEP projects, but SoCalGas and SDG&E's
19 method clearly is more likely to approximate the actual project costs.

20 **II. THE USE OF AVERAGES IS NOT APPROPRIATE FOR DETERMINING THE**
21 **COSTS OF EXECUTING SPECIFIC IDENTIFIED PROJECTS.**

22 **A. A Cost Per Mile Methodology Based on a Small Dataset Is Inappropriate To**
23 **Forecast Costs Associated with a Few Projects.**

1 Both ORA and TURN and SCGC propose the use of an average cost per mile (or some
2 variation thereof) to determine forecasts for the projects included in this Application.⁵ Using
3 cost per mile (CPM) for estimating projects is a form of parametric estimating. Parametric
4 estimating uses a dataset of historical projects and averages a cost per unit to predict cost -- in
5 this case, the CPM. While parametric estimating may be useful for high-level scoping decisions
6 or to evaluate company and industry trends, it is not appropriate to determine the forecasted cost
7 of a specified pipeline project. Each pipeline project is unique and possesses associated
8 uncertainties that must be accounted for. Even projects of similar lengths and diameters can vary
9 drastically in cost due to factors both within and outside the control of the project team. For this
10 reason, SoCalGas made significant efforts toward understanding the variations of each specific
11 project in this Application and built, using a bottoms up approach, 12 specific cost estimates that
12 account for each project's unique circumstances.

13 If performed correctly (which TURN and SCGC and ORA do not do), a CPM approach
14 can be useful, though not as useful as detailed estimating, when they are applied to a sufficiently
15 large number of similar projects such that the variances among projects are accounted for
16 properly. Distribution across a great number of projects naturally could allow for a balancing out
17 such that projects where costs exceed what the model predicted could be offset by projects where
18 the actual costs are less than predicted by the model. However, there are far too few projects –
19 only 12 – in this Application for this balancing out approach to work. The 12 projects in this
20 Application also widely vary from one another as there are urban and rural, short and long, etc.,
21 and each have individual complexities. And, even if there were more projects, the dataset
22 underlying the model would still need to be based on an appropriately large number of

⁵ ORA-01, Prepared Testimony (Stannik) at 4; TURN/SCGC Direct Testimony (Yap) at 7.

1 completed projects with similar attributes. This is not the case for either ORA's or TURN and
2 SCGC's models.

3 The model ORA uses to analyze the replacement costs may be more appropriate for
4 PG&E as 90% of the projects are comprised of PG&E's completed projects versus only 8% for
5 SoCalGas. It is likely that PG&E and SoCalGas and SDG&E manage their projects differently,
6 and there certainly is uniqueness between the two parts of the state. Moreover, because
7 SoCalGas and SDG&E cannot see the details of the PG&E data that is incorporated in ORA's
8 model (the actual data has not been made available to SoCalGas and SDG&E), SoCalGas and
9 SDG&E have been deprived of the opportunity to probe the data and distinguish it, which is
10 patently unfair.

11 **B. SoCalGas and SDG&E's Method of Predicting Costs by Analyzing the**
12 **Unique Circumstances of Each Individual Project Is More Likely To Be**
13 **Accurate than Intervenors' CPM Approach.**

14 As described in my direct testimony, explained in greater detail in Section V herein, and
15 as originally described in A.15-06-013, SoCalGas and SDG&E undertook a robust methodology
16 for the development of the detailed project estimates included in this Application.⁶ The
17 components of the methodology track the project attributes as they are determined in Stages One
18 (Project Initiation), Two (Project Scoping), and Three (Begin Detailed Design) of the Seven
19 Stage Review Process, which was established to promote efficient PSEP Project Execution.
20 During Stage 1, among other things, the project team reviews and researches existing company
21 documentation to determine if records can be found to remove the asset from PSEP, to
22 investigate if changes to the asset have been made since the 2011 PSEP filing or if operating
23 conditions have been changed. If the asset remains in scope after the Stage 1 research effort is

⁶ SoCalGas and SDG&E Amended Direct Testimony (Gonzalez) at 4-10.

1 complete, the project team then begins to determine the execution scope in a manner that is safe,
2 meets regulations, and is prudent from a cost and operational perspective. In Stage 2 the project
3 team evaluates project alternatives such as testing versus replacing, the possibility of lowering
4 pressure or abandoning the line, rerouting the pipeline to a more safe or suitable alignment. As
5 the process defines the scope of project further and further, the estimating process takes into
6 account the input of the relevant subject matter experts as they identify the unique individual
7 characteristics of each project. The project manager gathers information from subject matter
8 experts to converge upon an optimal scope. Environmental, Land and Permitting, Outreach and
9 Public Affairs, Operations, Construction experts, and others weigh in to identify the
10 opportunities and risks of the project options from their expert perspectives. Once a scope is
11 determined, the team then conducts Stage 3 activities to support a detailed bottoms up estimate
12 and its corresponding project schedule. The Stage 3 activities include, but are not limited to,
13 substructure research of below-ground utilities, site visits with construction experts to plan work
14 area and laydown yards, meetings with operations to plan tie-ins and gas handling, etc. All of
15 the activities and scope elements are then estimated by the team determining the time, equipment
16 and materials needed to complete the projects. This input goes beyond just a cursory review; it
17 includes field visits to gain familiarity with the area, a review of environmental conditions and
18 additional assessments of the specific circumstances of each project. Section IV.B, below,
19 illustrates the importance of this input with respect to the two pressure test projects proposed in
20 this Application (Lines 2000-C and 2000-D).

21 Cost per mile is utilized as a comparison metric by Intervenors in this proceeding.⁷

22 However, their cost per mile metrics are not robust enough to be used for either comparison or

⁷ ORA-03, Prepared Testimony (Yunge) at 4; ORA-04, Prepared Testimony (Stannik) at 5; TURN/SCGC Direct Testimony (Yap) at 7.

1 funding recommendations. Cost per mile metrics are blind to the unique attributes of each
2 project; they do not account for the fact that each project has unique and varying cost drivers,
3 such as soil condition, installation requirements, permitting requirements, environmental
4 considerations, underground facility density and other project-specific requirements that can
5 increase costs over an “average” project. SoCalGas and SDG&E’s approach, however, takes
6 these attributes into account.

7 Project costs vary significantly by length, size, construction conditions and many other
8 factors. TURN and SCGC’s witness, Ms. Yap, uses two projects as comparison for the Line 36-
9 1001/45-1001 project, a rather long and challenging replacement project.⁸ Both projects used by
10 Ms. Yap are less than ¾ of a mile – under half the length of the subject project -- and, as such, as
11 a foundational matter are not reasonable comparisons for this 1.6 mile project. The two projects
12 have installation costs projected by Ms. Yap that show a wide disparity in costs.⁹ However, no
13 engineering or design comparison was done among these projects to determine whether they are
14 reasonable comparisons. And, in fact, these are not representative projects for comparison to
15 Line 36-1001/45-1001. The Line 235 Sawtooth Canyon project Ms. Yap uses did not have the
16 construction challenges that Line 36-1001/45-1001 will face due to the topography. The Line
17 1011 project used by Ms. Yap is merely 405 feet and thus is not representative of the
18 approximately 1.6 mile Line 36-1001/45-1001 project. As Applicants have maintained, in
19 general, comparisons between projects¹⁰ should not be made because there are too many
20 variables that must be accounted for but simply cannot be with any level of accuracy.

⁸ TURN/SCGC Direct Testimony (Yap) at 11, Table 3.

⁹ TURN/SCGC Confidential Attachments B-G to Direct Testimony (Yap) at 26-28.

¹⁰ A.14-12-016, SoCalGas/SDG&E Rebuttal Testimony (Mejia) at 13.

1 ORA’s witness, Mr. Yunge, utilizes an analysis that shows an 80% prediction
2 methodology.¹¹ His comparison projections show wide disparity in costs and thus are not
3 representative comparisons. Again, no engineering or design comparisons were developed to
4 determine the validity of the comparisons.

5 Similar to Ms. Yap, Mr. Yunge recommends use of a CPM approach which produces
6 inferior cost estimates compared to the SCG/SDG&E approach of taking into account the
7 uniqueness of each project.

8 Both Ms. Yap and Mr. Yunge have developed a methodology to average project costs
9 and have stated this is the best way to predict costs for the projects submitted in this proceeding.
10 However, neither approach accounts for the basis of engineering or project design changes
11 throughout projects. Individual projects vary widely, as discussed below, and thus so must their
12 costs.

13 Projects have many factors that can increase costs. The following discussion applies to
14 most projects in general.

15 Soil conditions can impact overall costs. Examples include encountering rock, “sugar”
16 sand or groundwater. Hard digging through rock slows progress to mere inches or feet per day
17 whereas with normal soil conditions hundreds of feet could be excavated per day. Even if rock is
18 only encountered for a small portion of the project length, it can have a large impact on costs.
19 “Sugar” sand is a condition where the soil is loosely packed and will not hold a trench wall.
20 Three projects in this Forecast Application, Line 38-960, Line 38-514 and Line 38-556, are
21 assumed to have sugar sand based on past projects in the area. This requires extra soil removal,
22 additional shoring and slows construction to a crawl. Groundwater impacts trenching speed

¹¹ ORA-03, Prepared Testimony (Yunge) at 4.

1 depending on flow rates, depth of trench and other factors. Construction near existing river beds
2 or drainage areas can have a project encounter “river run,” or a mixture of soil types including
3 sand and small rocks up to large boulders. These mixed soil types slow construction. This
4 demonstrates the various disparate impacts of just one input – soil conditions – that Applicants
5 consider in preparing their forecast estimates.

6 Another category -- installation requirements (mean and methods) – also vary due to
7 crossing utilities, agency requirements and ability to construct. For example, a large drainage
8 structure or sewer can require extra depth, boring, horizontal and vertical offsets, or other special
9 accommodations during construction. Even a project that could be assumed to be solely open
10 trench construction might have different permit conditions placed on it. For example, the rural
11 Line 38-556 project in Tulare County had the requirement imposed to do the more expensive
12 trenchless construction. The county required directional drilling based on the fact that the
13 pipeline crosses five roads that had been paved recently. These types of changes slow
14 construction progress. The size of the line being installed can also impact the flexibility for
15 making horizontal and vertical changes in direction. Smaller diameter lines (less than 10 inches)
16 can change directions in a smaller horizontal place and narrower trench. Larger diameter lines
17 require extra space to complete direction changes. Narrow roads restrict construction zones to
18 one lane in some circumstances, and construction is slower in narrower construction zones.

19 Permitting requirements are one of the most variable factors impacting project progress
20 (and, in turn, costs). Limited work hours tend to be the largest impact from permitting. For
21 example, if a project is allowed in a street from 9 a.m. to 4 p.m. each work day, only 4.5-5 hours
22 is productive construction time. The remainder of the time is spent on other, non-construction
23 activities: traffic setup, plate removal and installation, moving construction equipment into

1 place, etc. This is the case with the Line 36-37 project in the city of Ventura. The western
2 section of that project is located along a busy shopping complex and near the city hall and
3 courthouse. As such, based on experience restrictive permitting conditions were factored into
4 the estimate. ORA's and TURN and SCGC's methods do not account for this.

5 Another permitting condition that slows progress, and thus increases costs, is nighttime
6 restrictions. As a general matter, being restricted to working only at night can increase
7 construction labor rates by 25%. Other permitting restrictions can include horizontal or vertical
8 offsets from other underground utilities and physical substructures. Another permitting
9 restriction that can impact time and cost is the area in which construction activity is allowed. For
10 example, some permits only allow 500 feet of active construction zone at any time in order to
11 reduce impacts on traffic and/or residents and local businesses. This short area slows progress
12 dramatically. Projects must be estimated based on anticipated permitting conditions, and the cost
13 associated with permitting conditions varies widely from project to project. Again, ORA's and
14 TURN and SCGC's methodologies do not account for this.

15 Environmental considerations can impact project construction as well. Contaminated soil
16 could be encountered, waterways might need to be crossed, or any other unique conditions may
17 arise. Depending on the existing pipeline coating, sections removed may have to be dealt with as
18 "contaminated," thus slowing progress and increasing costs. An example of this is Line 38-960
19 proposed in this proceeding. This pipeline's alignment parallels an unknown petroleum line for
20 approximately one mile. This factor has been accounted for in the project's estimate. ORA's and
21 TURN and SCGC's models do not account for this.

22 Underground facility density is a major factor in project construction progress.
23 Depending on the congestion below ground, it can be difficult to find a suitable and safe path for

1 pipeline installation. Older rights of way can often contain many other structures and abandoned
2 lines, posing construction conditions that impede progress. Especially troublesome are parallel
3 utilities or facilities in the construction path. These require extra care for protection, trench
4 safety and worker safety. Underground facility density requires horizontal offsets or extra depth
5 offsets, both of which impact installation speed. One project in this Application, Line 43-121, is
6 located on Sepulveda Boulevard in the city of Los Angeles. This street has severely congested
7 utilities and substructures and will require the pipe to be removed and replaced in the same
8 location as opposed to the new pipe being installed offset of the existing pipe. Additionally,
9 there are several pipelines operated by other utilities in close proximity to Line 43-121, which
10 results in an extremely tight working area. This requires a longer construction duration than in a
11 less congested street, resulting in a higher project cost estimate. SoCalGas and SDG&E's
12 estimates account for this; ORA's and TURN and SCGC's estimates do not.

13 Other project-specific considerations that drive costs include, but are not limited to, items
14 such as tie-in types, branch connections, number of intersections crossed, utilizing existing
15 segments of the line inside project boundaries, and customer support during outages. For
16 example, the Line 36-37 Section 12 abandonment project requires complicated tie-ins and
17 customer support that requires the use of Compressed Natural Gas. SoCalGas and SDG&E's
18 estimate for this project has accounted for these factors; ORA's and TURN and SCGC's
19 estimates have not.

20 For the reasons stated above, using an average CPM is not appropriate to determine the
21 funding amounts for specific replacement, hydrotest and abandonment/derating projects.
22 Projects vary greatly from one another for numerous reasons. We believe the prudent approach
23 is to build project-specific estimates based on inputs for each individual project, which is how

1 costs were determined for the projects included in this Application. A team of experienced
2 subject matter experts participated in the scoping, scheduling and cost estimating as they
3 progressed from Stages 1 through 3 and referenced the Phase 1A work process map to forecast
4 costs and risks for each project based on SoCalGas and SDG&E's actual experiences in
5 implementing PSEP. Nothing can better inform forecasted costs than the costs and experiences
6 actually encountered by the utilities who will be executing the work.

7 To the extent ORA and TURN and SCGC maintain confidence in the cost estimates
8 derived from their different methodologies, logically they should not oppose SoCalGas and
9 SDG&E's proposal for a two-way balancing account since ratepayers would only pay for actual
10 project costs.

11 **III. ORA's MODEL PRODUCES FLAWED RESULTS**

12 **A. ORA's Model Does Not Take into Consideration Components Necessary To** 13 **Develop Accurate Replacement Project Forecasts.**

14 There are a number of flaws in ORA's model. ORA's model does not, and cannot,
15 provide an accurate forecast of project costs for the limited number of projects in this application
16 for the following reasons:

- 17 1) The dataset's costs were not escalated. The dataset contains actual costs for
18 projects completed primarily in the years 2011-2014. SoCalGas and
19 SDG&E's costs projections in this Application are in 2017 dollars.
- 20 2) Ninety percent of the dataset from which ORA's model is developed are from
21 PG&E projects. Only 8% of the projects are SoCalGas and SDG&E projects.
- 22 3) Although unable to question PG&E regarding their data that is incorporated
23 into the dataset, SoCalGas and SDG&E believe PG&E's cost breakdown
24 differs from theirs. For example, regarding facilities costs: SoCalGas and

1 SDG&E included the specific costs to both lease space and the one-time cost
2 to build out the space (install cabling, purchase furniture, etc.). PG&E stated
3 such costs were accounted for via a burden on the labor rates, which indicates
4 a blended system average rate where one-time type costs are not fully
5 included on just the PG&E PSEP projects. And if the burden was applied to
6 just company labor then it would seem to underallocate facilities cost because
7 of the large number of contractors presumably housed with PG&E personnel
8 in PG&E offices. Similarly, PG&E's LNG/CNG costs added to projects may
9 be substantially different than SCG/SDG&E's. PG&E's response to ORA's
10 data request stated: "LNG/CNG support of a specific project was charged to
11 the project."¹² It is not clear whether this includes all costs to stand up and
12 support the LNG/CNG department or just an hourly rate for people and
13 equipment who supported an individual project. Finally, unlike PG&E,
14 SoCalGas and SDG&E were subjected to after-the-fact reasonableness
15 reviews for their Phase 1A projects, and the nature of reasonableness reviews
16 imposes additional reporting and filing requirements which add additional
17 costs that are included in SCG/SDG&E's project costs. PG&E's response to
18 ORA's data request, "Support provided by PG&E personnel to develop
19 regulatory filings and response to associated data requests is considered a
20 company overhead"¹³ indicates that these additional PSEP-specific costs are

¹² ORA's January 19, 2018 revised response to SCG/SDGE DR-01 Q.1i-j, Attachment-01 (PG&E's response to ORA DR11601 Q.1c at p.2). See attachment B.

¹³ ORA's January 19, 2018 revised response to SCG/SDGE DR-01 Q.1i-j, Attachment-01 (PG&E's response to ORA DR11601 Q.1i at p.2). See attachment B.

1 not assigned solely to PG&E projects but rather are spread to all departments
2 (PSEP and not) through their overhead allocation mechanism.

3 4) SoCalGas and SDG&E believe that PG&E's project makeup in the ORA
4 dataset is significantly different than SoCalGas and SDG&E's. Whereas the
5 completed SoCalGas and SDG&E projects are primarily in densely populated
6 areas, SoCalGas and SDG&E believe that a greater proportion of PG&E's
7 projects are in less populated/congested, more rural areas where it generally
8 is less costly to complete projects.

9 5) ORA's Replacement Project-Specific Recommendations. ORA's
10 recommendation on the project-specific replacement project costs is
11 unfounded. ORA recommends their model-based replacement project costs
12 only for those projects for which their model-based cost forecast is lower than
13 those of the Applicants. However, ORA abandons their model-based cost
14 forecasts in favor of the Applicants' forecast for projects for which
15 Applicants' forecast is lower. ORA seeks to have it both ways, so long as the
16 lower project cost is the basis. ORA must pick their method or ours; not
17 both, depending on the outcome of applying the method.

18 For all these reasons, ORA's cost model is flawed. The Commission should reject
19 ORA's recommendation of total project costs of \$104.1 million and instead adopt SoCalGas and
20 SDG&E's \$146.122 million forecast estimate for the 8 Replacement projects in this Application.

1 **B. ORA’s Model Only Considers Two Factors -- Length and Diameter – and**
2 **Excludes the Highly Important Consideration of Urban versus Rural.**

3 ORA’s model is further flawed as a predictive tool because it only uses two project
4 components -- length and pipe diameter – as predicting factors when many more factors
5 influence the forecasted and final costs of pipeline projects. These factors include, but are not
6 limited to, surface congestion rating (population density), means and methods (installation
7 details), work hour restrictions based on project location, available lay down and material staging
8 areas, maintaining natural gas supply to customers during work, soil conditions, congested
9 subsurface infrastructure, elevation changes, variance in local, state, and jurisdictional permitting
10 and regulations, the need to obtain land rights, etc. Of the many variables, it is SoCalGas and
11 SDG&E’s experience that surface congestion (i.e., urban versus rural) and subsurface congestion
12 (highly variable in urban settings and not much of a factor in rural settings) are among the most
13 significant cost drivers, and they are missing from ORA’s predictive model. By not including
14 these other factors in the model, the model can be useful, at best, only where there are a much
15 larger number of projects such that the high cost outliers balance out the low-cost outliers. This
16 number would have to be far greater than the 8 replacement projects in this Application.

17 The detailed estimates prepared by SoCalGas and SDG&E for the projects contained in
18 this Application consider all the factors described above, as implicated. Not including these key
19 factors into the estimate yields a lower level of confidence in ORA’s estimated projected costs.
20 Additionally, omitting key factors will cause the ORA model to systematically either over-
21 estimate or under-estimate the effects of project distance and pipeline diameter. This will lead to
22 incorrectly calculated prediction intervals as well since they are based on the estimated effects.

1 **C. ORA’s Recommendation Based on CPM for SoCalGas and SDG&E’s Two**
2 **Hydrotest Projects Is Similarly Flawed.**

Project	Total Cost (\$M)	Miles	\$/Mile
Line 2000-C	32.003	22.943	1.395
Line 2000-D	35.721	14.038	2.545
ORA Proposal ¹⁴			1.216

3
4 The vast majority of the pressure test data points in ORA’s dataset are from PG&E’s
5 projects (220 completed PG&E hydrotest projects are included, whereas only 14 SoCalGas and
6 SDG&E completed hydrotest projects are included). SoCalGas and SDG&E believe that the
7 majority of PG&E’s hydrotest projects were conducted in flat locations, i.e., very different in
8 terrain and elevation change than the two pressure test projects included in this Application.
9 Where there is little to no elevation change, single tests can be performed for much longer
10 lengths, which in turn reduces costs, which then results in a lower CPM for PG&E. If there are
11 greater elevation differences throughout the profile of the hydrotest, the tests have to be broken
12 into multiple test sections. The reason for this is the pressure that the pipeline experiences
13 during a hydrotest is greater at the lower point of the test than at the high point. The differential
14 in pressure is proportional and becomes greater as the elevation increases. During a test to
15 appropriately pressure test the points of higher elevation to meet the operating conditions, the
16 pressure at the lower elevation point must be limited to pressures that do not go beyond the
17 failure limits of that pipeline’s material. As a result the greater the elevation factor the shorter
18 the test section, the more tests segments a project must be broken into. Elevation factor can
19 drastically impact the cost of a hydrotest, as it does in the case of the two projects in the
20 Application. To safely test the Line 2000-D project length of approximately 14 miles, the

¹⁴ ORA-04 at 3.

1 pressure test must be performed in 15 separate segments. Similarly, Line 2000-C, with a project
2 length of approximately 23 miles, must be performed in 16 separate segments. The hilly terrain
3 where these projects are located requires multiple test segments, in contrast to a project executed
4 on flat land, where a single 15-mile test is possible with one mobilization and two bell holes.

5 Moreover, length is not necessarily correlated to cost. The input of subject matter experts
6 in the development of the detailed cost estimates for the proposed hydrotest projects resulted in a
7 higher estimated cost for Line 2000-D, despite it being nine miles shorter than the Line 2000-C
8 project length. The necessity of multiple work sites create construction equipment and personnel
9 access challenges, more complex water handling logistics, and longer overall construction
10 schedules, all of which contribute to costs that exceed both the cost of the longer hydrotest and
11 ORA's predictive averages. For these reasons, SoCalGas and SDG&E do not believe ORA's
12 average cost per mile to be a reasonable or prudent methodology.

13 The two projects ORA deemed to be outliers when determining their per mile costs were
14 SoCalGas and SDG&E projects and, actually, are similar in scope to that of the two hydrotests in
15 this Application. Those projects are also part of SoCalGas' Line 2000, which requires being
16 broken into several test sections for constructability reasons to achieve the required outcome.
17 The two projects in this Application, once complete, would also be outliers in ORA's dataset.

18 For these reasons the Commission should reject ORA's recommendation of \$45 million,
19 and adopt SoCalGas and SDG&E's \$67.7million estimate, for the two hydrotest projects in this
20 Application.

21 **D. ORA Did Not Address Two Projects in Its Testimony**

22 In their Executive Summary (ORA-01), ORA recommends a forecast recovery of
23 \$149.21MM based on their recommendations for the replacement and pressure test projects
24 included in this Application. ORA appears not to have included the Line 36-37 Section 12 De-

1 Rate/Abandonment Project and the Line 36-1002 De-Rate Project in its recommended forecast
 2 recovery amount. This can be verified by summing ORA’s recommended forecast recovery
 3 amount (\$149.12M) and the proposed reduction from SoCalGas and SDG&E’s forecast
 4 (\$64.73M). The total of these two amounts is \$213.85M, which is \$40.65M less than what ORA
 5 states is SoCalGas and SDG&E’s proposed total forecast of \$254.5M (\$197.5M Capital and
 6 \$57M O&M). These two projects do not appear to be addressed in the various ORA testimony
 7 chapters.

8 As it proposes estimates for all the projects proposed in the Application, the Commission
 9 should review the entirety of SoCalGas and SDG&E’s request, as stated in our Application and
 10 Direct Testimony.

11 **IV. TURN AND SCGC’S BENCHMARKING METHODOLOGY**

12 Table 2 presents a comparison of SoCalGas and SDG&E’s forecasted costs with those
 13 calculated by TURN and SCGC.

14 **Table 2**

15

Project Number	SoCalGas / SDG&E Forecasted Cost	TURN / SCGC Forecasted Cost	Difference
127	\$1,830,070	\$781,016	\$1,049,054
7043	\$1,807,206	\$755,693	\$1,051,513
36-37 Section 11	\$64,672,023	\$47,034,237	\$17,637,786
36-1001 / 45-1001	\$14,981,271	\$10,557,714	\$4,423,557
38-514	\$9,991,572	\$10,056,848	-\$65,276
38-960	\$24,423,344	\$21,087,146	\$3,336,198
43-121	\$11,059,941	\$6,818,864	\$4,241,077

38-556	\$17,356,705	\$20,361,061	-\$3,004,356
36-37 Section 12	\$20,933,670	\$9,939,738	\$10,993,932
36-1002	\$6,372,013	\$6,372,013	\$0
2000-C	\$32,003,307	\$20,963,957	\$11,039,350
2000-D	\$35,721,726	\$17,883,579	\$17,838,147

1
2 While TURN and SCGC’S analysis does not replicate some of the problems inherent in
3 ORA’s analysis because they do not rely primarily on PG&E’s and Southwest Gas’ data, they
4 recognized the differences in project type,¹⁵ accounted for escalation factors, and used fully
5 loaded costs, their approach still amounts to a cost per mile approach and, for the reasons stated
6 in Section III of my testimony, thus is not appropriate. Further, the sample size of projects used
7 in TURN and SCGC’s analysis is too small to render useful estimates for the projects and
8 certainly cannot compare to SoCalGas and SDG&E’s detailed cost estimates that take into
9 account specific project variables. Table 3 shows the number of projects benchmarked by
10 TURN and SCGC by project type:

11 **Table 3**

12 Number of Projects Utilized in TURN and SCGC’s Benchmarking Analysis

Project Type	Number of Projects Benchmarked
Replacement Projects < 100 Feet	5
Longer Replacement Projects -Mixed Urban/Rural	3
Longer Replacement Projects – Rural/Hilly Terrain	2

¹⁵ TURN and SCGC include factors such as population density, terrain, and project type (short replacement, long replacement, hydrotest, de-rate and abandonment) in their analysis and group their benchmarking data accordingly.

Longer Replacement Projects – Rural/Flat Terrain	2
Line 43-121	2
Pressure Test Projects	4
De-Rate/Abandonment Projects	1

1
2 Despite incorporating more variables into their analysis, nevertheless such a small sample
3 size cannot render a meaningful benchmarking analysis. Table 2 exhibits this shortcoming.
4 Moreover, TURN and SCGC use a unique project, 235 Sawtooth, in two different benchmark
5 samples. Each benchmark sample should be unique; using a single project in two separate
6 samplings is not appropriate.

7 TURN and SCGC state that benchmarking the Application projects (which they assume
8 to be in Class 1 and 2 locations, yet compare them to completed projects that are located in Class
9 3 and 4 locations) results in a conservative comparison because projects in Class 3 and 4
10 locations tend to have greater construction constraints.¹⁶ While this may be true on a broad-
11 brush basis, projects in more rural locations, such as the majority of those in this Application,
12 tend to have more environmental constraints and construction challenges, such as with Line
13 2000-C and Line 2000-D

14 As with ORA’s flawed analysis, TURN and SCGC’s CPM approach, while purporting to
15 average out high cost projects with low cost projects, actually predicts lower costs in 9 of 12
16 projects, underestimating the total cost of projects by 28%.

17 For these reasons the Commission should reject TURN and SCGC’s recommendation of
18 \$153.21 million for capital, and \$32.75 million for O&M, and instead adopt SoCalGas and
19 SDG&E’s detailed cost estimates of \$197.5 million for capital and \$57 million for O&M.

¹⁶ TURN/SCGC Testimony (Yap) at 7.

1 **V. SOCALGAS AND SDG&E’S ESTIMATES ARE PROJECT-SPECIFIC AND**
2 **HAVE BEEN VERIFIED AS CLASS 3 ESTIMATES**¹⁷

3 **A. SoCalGas and SDG&E Cost Estimates are Bottoms Up and Project-Specific**

4 As described in my direct testimony, “since 2013 there have been ongoing efforts to
5 enhance estimate accuracy by incorporating actual costs as they are incurred in the field and
6 through increased focus on estimating through the creation of a dedicated and more experienced
7 estimating department. These continuous improvement enhancements have resulted in a more
8 robust tool that incorporates the input of subject matter experts in the functional areas listed
9 below. These subject matter experts use their respective expertise and professional experience to
10 provide estimate assumptions for their areas that form the basis of each estimate.”¹⁸ As opposed
11 to forecasting costs in parametric fashion, SoCalGas and SDG&E believe it is more appropriate
12 to create project-specific estimates for each project. This allows for the factors mentioned above
13 to be assessed and incorporated in the projections. As stated in Section II, projects follow the
14 PSEP Seven Stage Review Process methodology from Stages 1 through 3. This allows for
15 proper scoping and risk analysis to be done. The project team, consisting of subject matter
16 experts, planned and estimated each project as if they were to be executed without delay. The
17 team used their expertise to scope a project that would promote optimum results. The teams
18 found ways to avoid costs such as by derating and abandoning lines, proposed the use of Non-
19 Destructive Examination (NDE) for a small project, and planned routes that allowed for
20 productive construction while maintaining the safety and operability of the lines. If difficult
21 means and methods are required, such as the rip-and-replace that is required on SL 43-121

¹⁷ As defined by the Association for the Advancement of Cost Engineering International (“AACEi”) 56R-08, Cost Estimate Classification System applied for the Building and General Construction Industries, see attachment A (KPMG Report).

¹⁸ SoCalGas and SDG&E Amended Direct Testimony (Gonzalez) at 5.

1 located on the congested Sepulveda Boulevard in Los Angeles, which entails removing the pipe
2 and replacing it in the same alignment, or trenchless construction is known to be needed for a
3 particular project, it is factored in the scope, schedule and estimate.

4 Once optimized, the project team developed a schedule based on specific information and
5 expert judgement to be used to estimate each project. Construction duration typically has the
6 largest impact to the overall cost of the project. Similar diameter and length projects can have
7 drastically different construction durations depending on factors such as population density,
8 permitting conditions, pavement and soil conditions, etc., all of which vary from project to
9 project. These factors are assessed and built into the schedule. This type of expert judgement
10 and project-specific execution planning is factored into these types of estimates but are not easily
11 accounted for by cost per mile approaches.

12 **B. KPMG Review of SoCalGas and SDG&E’s Project-Specific Estimates**

13 SoCalGas and SDG&E hired an outside consultant, KPMG, to review their estimates,
14 processes, and methodology to determine if they meet industry standards for American
15 Association of Cost Engineers’ (AACE) Class 3 estimates. KPMG reviewed 11 estimates
16 included in this Application and SoCalGas and SDG&E’s 2019 General Rate Case Application.
17 KPMG determined SoCalGas and SDG&E’s estimates to be within acceptable range of expected
18 variances. They also found that the processes and practices used by SoCalGas and SDG&E to
19 develop cost estimates are consistent with industry practice for developing an AACE Class 3
20 estimate.

21 **VI. A TWO-WAY BALANCING ACCOUNT PROTECTS RATEPAYERS AND IS** 22 **FAIR FOR SHAREHOLDERS**

23 Even with the most prudent estimating and project scoping practices applied, as stated in
24 my testimony “...estimates are just that, and each PSEP project is unique with foreseeable and

1 unforeseeable occurrences.”¹⁹ In fact, one of the projects included in this Application illustrates
2 why the two-way balancing account approach is judicious. Since this Application was filed,
3 SoCalGas and SDG&E have continued into the detailed design phase on Line 36-37 Section 11,
4 when discussions are held with permitting agencies. One of the permitting agencies, Caltrans,
5 has informed us that the planned method for replacement for this project that was factored into
6 the project estimate will not be acceptable along the portion of the project that is beside State
7 Highway 118. Rather than allowing the replacement line to be laid in parallel to the existing line
8 and subsequently abandoning the old line in place, Caltrans is requiring the old line to be
9 excavated and completely removed. As this is not standard practice, SoCalGas and SDG&E will
10 be negotiating this permit condition with Caltrans but, if unsuccessful, SoCalGas and SDG&E
11 has estimated this new requirement will increase the total project cost by approximately \$8
12 million. A two-way balancing account treatment equitably provides protection from such
13 unforeseeable circumstances that are outside of standard operating procedure and not within
14 SoCalGas and SDG&E’s control.

15 ORA recommends a one-way balancing account for O&M projects and is silent on
16 capital projects. ORA justifies this position by stating “...the utilities should not be permitted to
17 collect ratepayer funds for costs above the permitted forecasted values, but any cost savings
18 should be refunded to the ratepayers,” and “the use of a one-way downward balancing account is
19 reasonable in conjunction with ORA’s recommendations in light of ORA’s use of a 90%
20 cumulative prediction interval and other conservative assumptions...” However, this is not
21 reasonable. Ratepayers are protected in either instance with a two-way balancing account

¹⁹ SoCalGas and SDG&E Amended Direct Testimony (Gonzalez) at 5.

1 because they are not made to pay for more than the actual costs incurred in executing this State
2 and Commission mandated safety enhancement work.

3 TURN and SCGC also urge the Commission not to adopt a two-balancing account on the
4 basis that PG&E “completed its entire testing and replacement program without any balancing
5 account treatment.” It is unclear which part of PG&E’s program TURN and SCGC are
6 referencing. For the 2011- 2014 period, while PG&E did not have a balancing account, it also
7 had capital costs that were \$696.4MM greater than what was allowed by the Commission.²⁰

8 TURN and SCGC go on to state, “PG&E pursued its replacement and testing program under a
9 forecast budget” referencing D.16-06-056 – PG&E’s 2015 GT&S decision. However, PG&E
10 did not have a list of specific projects they proposed to address within the period covered in the
11 GT&S. Instead, PG&E requested and received the ability to substitute projects, which gave
12 PG&E the ability to stay under the amount authorized by the Commission.

13 SoCalGas and SDG&E’s proposal for a two-way balancing account is fair to both
14 ratepayers and shareholders. If costs come in lower than projected, then ratepayers will benefit
15 from the lower costs. If costs come in higher than estimated, the shareholders are not penalized.
16 Either way, ratepayers do not pay more than the actual costs of executing the projects. SoCalGas
17 encourages the Commission to reject ORA’s and TURN and SCGC’s proposals and instead
18 adopt a two-way balancing account.

19 **VII. CONCLUSION**

20 D.16-08-003 approved SoCalGas and SDG&E’s unopposed²¹ request to establish
21 memorandum accounts to begin detailed planning and engineering design for Phase 2 projects.

²⁰ D.16-06-056 at 261.

²¹ D.16-08-003 at 1.

1 In addition, D.14-06-007 gave SoCalGas and SDG&E the authority to file for pre-approval of
2 specific projects.²² The 125 pages of workpapers providing extensive supporting detail for the
3 12 projects included in this Application clearly demonstrate the rigor and completeness that went
4 into the cost estimates. Although employing different methodologies, the funding levels
5 proposed by ORA and TURN and SCGC in their respective testimony rely on simplistic
6 assumptions and ignore the variabilities in projects that drive costs and are intimately considered
7 in the detailed estimates provided by SoCalGas and SDG&E. For the reasons detailed in this
8 testimony, ORA's and TURN and SCGC's proposed funding levels should be rejected and the
9 Commission should adopt the detailed forecasts provided by SoCalGas and SDG&E.

10 This concludes my Rebuttal Testimony.
11

²² D.14-06-007 at 24.

ATTACHMENT A



To	Date
Southern California Gas Company	January 16, 2018

Prepared by
KPMG's Major Projects Advisory Practice

1. Purpose

KPMG's Major Projects Advisory practice ("KPMG," "our," or "we") was engaged by Southern California Gas Company ("Company") to prepare an assessment of the Company's Pipeline Safety Enhancement Plan (PSEP) project estimating process and methodology for Phase 1B/2 PSEP projects. The purpose of this memorandum is to summarize the conclusions and the assessment procedures performed by KPMG.

The overall objective of this engagement was for KPMG to assess whether the Company's estimating methodology and supporting documentation produces cost estimates that fall within the expected range of a Class 3 Estimate, as defined by the Association for the Advancement of Cost Engineering International ("ACEi") 56R-08, Cost Estimate Classification System applied for the Building and General Construction Industries.

2. Conclusions

Company's estimating procedures are consistent with industry practice for developing an ACEi 56R-08, Class 3 Estimate – KPMG conducted meetings with Company representatives and consultants, reviewed the Company's estimating procedures, project estimates, and documentation to support the Phase 1B estimates. Based on this research and our experience in the industry, we believe that the Company's estimating processes and methods for preparing Total Installed Cost (TIC) estimates for Phase 1B/2 projects are consistent with industry practice and will support an ACEi 56R-08, Class 3 Estimate. Based on reviewing the Company's documentation to support the Phase 1B estimates, the variations identified are within the expected accuracy range for an ACEi 56R-08, Class 3 Estimate. Per ACEi 56R-08, the expected accuracy range of Class 3 is Low: -5% to -15% and High: +10% to +20%, where the +/- value represents typical percentage variation of actual costs from the cost estimate after application of contingency (typically at a 50% level of confidence) for a given scope.

Overall improvement from Phase 1A – Based on interviews and our review, the Company's methodology for preparing estimates for Phase 1B projects has improved from Phase 1A projects. The estimating process for Phase 1A projects utilized a parametric type estimating tool to produce a percentage based estimate. The current and improved estimating process for Phase 1B/2 projects utilizes a bottoms-up approach with input and deliverables provided from various project stakeholders (i.e., Environmental, Land Services, Construction Inspection, Community Outreach, Project Management Services, Survey, and Project Controls) and a centralized group of professional cost estimators.

Appendix A – Assessment Procedures

The scope of our approach included conducting interviews, meetings, and working sessions with Company representatives and its consultants; review of Phase 1B/2 estimating procedures; and review of Phase 1B estimate documentation. Although Phase 2 project estimates have not yet been prepared, it is our understanding that the estimating process for Phase 1B will be applied to Phase 2. Therefore, the overall conclusions are applicable to Phase 1B and Phase 2 projects.

1. On-site Meetings

KPMG conducted interviews, meetings, and working sessions from November 8, 2016 through December 22, 2017 with representatives from the Company and its consultants. Initial interviews were conducted to:

- Understand the process for how TIC estimates for Phase 1B projects are prepared;
- Understand lessons learned and process changes from Phase 1A to Phase 1B/2 projects;
- Understand the representatives' involvement in the process; and
- Vet preliminary process observations and gaps.

As we reviewed Phase 1B estimate documentation, we met with the Company's Chief Estimator and its consultants to review and vet observations to confirm any variances between the Company's original estimate and the revised amount as supported by documentation provided by the Company.

Interviews and meetings were conducted with the following representatives:

- Steve Urquidi, Estimating, Sempra Utilities
- Daniel Shapiro, Project Controls, Sempra Utilities
- Tanzania Ware, Environmental, Sempra Utilities
- Peter DiSomma, Engineering Consultant, SPEC Services
- Jacob Decker, Construction Estimate Consultant, Campos EPC, LLC
- Ed Philley, Construction Subject Matter Consultant, Snelson Companies, Inc.

2. Documentation Review

KPMG reviewed estimate documentation provided by representatives interviewed prior to and during the course of KPMG's fieldwork. Estimate documentation was then reviewed to corroborate the process identified during interviews, and to assess whether documentation provided by the Company supports the Phase 1B estimates.

KPMG was provided the following process documents for review:

- *Estimating for Pipeline Safety Enhancement Plan, Standard Procedure SP 0307, Rev. 3*, revised drafts dated November 2015, March 2017, and June 2017
- *Project Estimates - SU AACE Class 3 Process*, dated 11/7/2016
- *Cost Estimating White Paper*, dated 2/3/2017
- *Phase 1B Filing Effort* (Informal Phase 1B process write-up provided during engagement scoping)

In addition, conclusions in this memo are based on KPMG's review of supporting documentation for 11 of 28 Phase 1B estimates. Preliminary observations and variances that were identified by KPMG led to recalculation of the project cost estimates, with the new cost estimates being within acceptable range of expected variances. The 11 project estimates reviewed included the following:

- 36-37 Section 11
- 38-143
- 36-1032 Section 14
- 38-101
- 38-514 Section 3
- 38-556
- 38-960
- 36-9-09 Section 12
- 36-9-09 Section 14
- 36-1032 Section 12
- 38-1102

ATTACHMENT B

ORA Response to SDG&E Data Request SCG/SDGE-ORA-A1703021-01

Application of Southern California Gas Company (U 904 G) and San Diego Gas & Electric Company (U 902 G) for (A) Approval of the Forecasted Revenue Requirement Associated with Certain Pipeline Safety Enhancement Plan Projects and Associated Rate Recovery, and (B) Authority To Modify and Create Certain Balancing Accounts

Origination Date: December 18, 2017
Due Date: January 3, 2018
Response Date: January 3, 2018
Revised Date: January 19, 2018

To: Avisha A. Patel
Attorney for SCG/SDG&E

From: Nathaniel Skinner, Project Coordinator
Office of Ratepayer Advocates
505 Van Ness Avenue, Room 4205
San Francisco, CA 94102

Response by: Nusrat Molla, Nils Stannik
Phone: 415-703-2097/ 415-703-1889
Email: nusrat.molla@cpuc.ca.gov / nils.stannik@cpuc.ca.gov

Data Request No: SoCalGas-SDGE DR-01 to ORA (A.17-03-021)

Exhibit Reference: ORA-02 – ORA Prepared Testimony in A1703021 – N. Molla
ORA-04 – ORA Prepared Testimony in A1703021 – N. Stannik

Subject: Data Request Response

The following is ORA's revised response to SCG/SDG&E's first set of data requests. Responses A1i and A1j have been revised. If you have any questions, please contact the responder at the phone number and/or email address shown above.

Data Request No. 1

Regarding ORA-02 (Prepared Testimony of N. Molla) and "ORA's database consist[ing] of 429 completed PSEP projects that were used for the development of linear regression models:"

Q1a. Please state whether the 429 projects included in ORA's database include all projects identified or otherwise referenced in the sources cited by ORA on page 3, lines 1-8 of witness Molla's prepared testimony.

A1a. The 429 projects referenced includes all completed projects from the sources listed in page 3, lines 1-8 of Mrs. Molla's testimony, with the exception of the projects listed as excluded in ORA-06-C, page 7. See also Response to Question 1b below.

Q1b. If any projects were excluded, please identify those and state the reason(s) why they were excluded.

A1b. Please see ORA-06-C for the list of projects that were excluded from the database and the reason(s) each one was excluded. As stated in ORA-02 (Prepared Testimony of N. Molla) pages 3-4, lines 18-22 and 1-7, respectively:

“Projects were excluded from the database if:

- *The project is neither hydrotest nor replacement nor mixed hydrotest and replacement (for example, Southwest Gas Project 3063883 is installation of an actuator);*
- *The project has updated costs found through later data sources (noted as “superseded”);*
- *Projects that refer to another segment (e.g., “See project ...”) for the total cost of all projects associated with that segment (noted as “merged”);*
- *Total project cost is \$0 or negative; or*
- *Project mileage is 0.”*

See also Response to Question 1a above.

Q1c. Provide a complete list of the PG&E projects from the 4th Quarter 2014 Compliance Report and from Data Requests referenced on page 3 lines 3-4.

A1c. Please see ORA-06-C pages 5-6 for all projects, including the referenced PG&E projects, which were included in regression, and ORA-06-C, page 7 for all projects, including the referenced PG&E projects, that were excluded from regression.

Q1d. If any projects identified in response to question 1.c above were not included in the database of 429 projects, clearly identify those and set forth the reason each was excluded.

A1d. Please see ORA-06-C page 7 for the list of projects that were excluded from the database and the reason(s) each one was excluded. See also response to 1c.

Q1e. Provide a complete list of the SoCalGas/SDG&E projects from A.14-12-016 workpapers, A.16-09-005, and the Monthly Compliance report, and Data Requests referenced on page 3, lines 4-7.

A1e. Please see ORA-06-C pages 5-6 for all projects, including the referenced SoCalGas/SDG&E projects, which were included in regression, and ORA-06-C, page 7 for all projects, including the referenced SoCalGas/SDG&E projects, that were excluded from regression.

Q1f. If any projects identified in response to question 1.e above were not included in the database of 429 projects, clearly identify those and set forth the reason each was excluded.

A1f. Please see ORA-06-C, page 7 for the list of projects that were excluded from the database and the reason(s) each one was excluded. See also response to 1e.

Q1g. Of the 429 projects included in ORA's data set, please state whether ORA modified the project costs and, if so, how and why they were modified for each project.

A1g. ORA did not modify any costs of any projects in its database.

Q1h. For each of the 429 projects, please state the pipe diameter used for the data set.

i. When there was more than one applicable diameter for a project, how did ORA determine the diameter to use for the database?

A1h. See ORA-06-C, page 5. The column labeled as "Diameter for Analysis" indicates the diameter used in regression for each project. As explained in ORA-02 (Prepared Testimony of N. Molla), page 3, lines 14-17:

"An additional column was added for the pipeline diameter to be used for analysis, which, for each project with multiple diameters listed, was the largest of the listed pipeline diameters used for that project."

This response has been updated as of January 19, 2018. The original response is in strike out, and the updated response provided in bold underline.

Q1i. Please state whether the following costs are included in PG&E's projects costs as listed in PG&E's Compliance Report 2014 Quarter 4:

- i. Office lease costs for PG&E personnel assigned to support PSEP;
- ii. Capital component of hydrotests;
- iii. LNG/CNG support for projects;
- iv. PSEP Project Management Office;
- v. Public Outreach;
- vi. Support of PSEP by PG&E Engineering department personnel;
- vii. Support of PSEP by Gas Control department personnel;
- viii. Support of PSEP by Training department personnel;
- ix. Support by PG&E personnel to develop regulatory filings and responses to associated data requests;
- x. Support by PG&E personnel in Operating regions to perform: constructability reviews, clearance procedures development; stand-by; gas handling during tie-ins; isolations for pipelines in preparation for hydrotesting; and similar construction support services.
- xi. Liability Insurance for PSEP projects;
- xii. AFUDC;

A1i. ~~PSEP Project Management Office (PMO) and Public Outreach costs are included in PG&E's project costs.~~

~~ORA has sent a data request to PG&E regarding the inclusion of the other specific components requested above and will update this response once a response has been received.~~

- i. **Included via burdened labor rates. Refer to PG&E Response 11601.04 and 11601.05 in Attachment-01.**
- ii. **Not included.**
- iii. **Included.**
- iv. **The Project Management Office (PMO) consists of two sub-organizations: Project Controls, and Project Execution. Costs associated with the Project Execution organization are included in PG&E's project costs.**
- v. **Included.**
- vi. **Included.**
- vii. **Included.**
- viii. **Project-specific training included.**
- ix. **Included via burdened labor rates. Refer to PG&E Response 11601.04 and 11601.05 in Attachment-01.**
- x. **Included.**

- xi. Included via burdened labor rates. Refer to PG&E Response 11601.04 and 11601.05 in Attachment-01.
- xii. Included.

Please see Attachment-01 for PG&E's full response and ORA's response to Question Q1j below.

This response has been updated as of January 19, 2018. The original response is in strike out, and the updated response provided in bold underline.

Q1j. Please state whether PG&E's project costs shown include company overhead-type costs (similar to the company overhead categories described in Mr. Austria's testimony of A. 14-12-016, Chapter IV, page 4).

- i. If so, please provide a description of what overheads are included.
- ii. If so, provide the dollar amount or % amount of the overheads added to the projects.
- iii. If not, why not?

A1j. ~~According to PG&E's Compliance Report 2014 Quarter 4, page 28-29, the total project cost includes overhead. PG&E's Compliance Reports do not provide overhead sub-categories, percentages, or dollar amounts on a per-project basis.~~

According to PG&E's response to ORA's data request (see attached), the following overhead-type costs are either included in PG&E's labor rate (which is applied to PSEP projects) and/or were charged directly to PSEP projects:

- **payroll tax**
- **vacation and sick time**
- **benefits**
- **Incentive Compensation Plan**
- **Rewards & Recognition (R&R)**
- **Purchased Services and Materials**
- **Administrative and General costs**
- **Public liability/Property Damage**
- **Insurance**

PG&E states in its response that "Workers' Compensation was not included in the labor rate; this is accounted for in a separate Provider Cost Center (PCC) and accounted for outside Major Work Categories (MWCs)."

Please see Attachment-01 for PG&E's full response to ORA's request.

Please see also response to Question Q1i above.

Q1k. Regarding the project costs for PG&E, SoCalGas/SDG&E and SWG of ORA-09-HC, for each company state:

i. Whether costs have been escalated to 2017 dollars?

ii. If projects costs were escalated, whether projects that were completed in different years were escalated by different amounts to account for yearly increases?

(1) If so by how much?

(2) If so, describe the methodology for the escalation factor and provide supporting workpapers.

A1k. ORA did not modify costs in any way, including via cost escalation.

Q11. Please provide all Data Requests submitted to PG&E, and PG&E's responses thereto, for the period February 2017 through December 2017 that relate to determining PG&E's PSEP project costs.

(1) Please identify all persons from PG&E who prepared the responses to the data requests.

(2) Please state whether the persons who prepared the data request responses from PG&E will be made available for cross examination at the hearing scheduled for this proceeding.

(3) If the answer to question i(2) above is no, who will be made available for cross examination as to the underlying factual basis and accuracy of those data request responses?

A11. Please see ORA-09-C (Confidential ORA Supporting Attachments, Volume 3), pages 705-713 and ORA-07 (ORA Supporting Attachments, Volume 1) pages 001-005. ORA responds to the subparts of Question 11 as follows:

- 1) ORA did not request, nor has PG&E provided, the names of technical staff who prepared part or all of the responses to the data requests. ORA suggests SCG/SDG&E contact PG&E for this information.
- 2) ORA does not have the authority to make witnesses for external entities, including PG&E, available for cross examination.
- 3) Ms. Molla is ORA's expert witness on PSEP project data and cost modeling. The vast majority of the data in ORA's database, including that of PG&E, is publically available or available to SCG/SDG&E.

Please see ORA-02, page 3, lines 1-8 for ORA's data sources and ORA supporting attachments, ORA-09-C and ORA-07 for the underlying data. See also main response text above.

To the extent that SCG/SDG&E have concerns about the underlying factual basis and accuracy of the data, ORA notes that PG&E is bound by the Commission's Rule 1.1, which states (emphasis added):

*"Any person who signs a pleading or brief, enters an appearance, offers testimony at a hearing, or transacts business with the Commission, by such act represents that he or she is authorized to do so and agrees to comply with the laws of this State; to maintain the respect due to the Commission, members of the Commission and its Administrative Law Judges; and **never to***

mislead the Commission or its staff by an artifice or false statement of fact or law.”

Q1m. Please provide the numeric values of the coefficients for the formula shown on Page 9.

A1m. Please see ORA-06-C (ORA Confidential Workpapers), page 01.

Data Request No. 2

Regarding ORA-04 (Prepared Testimony of N. Stannik):

Q2a. With respect to the projects described on Page 3, lines 9-11, please provide both the list of all completed projects over three miles in length and a list ("subset") of the projects used by ORA in its analysis of hydrotest cost-per-mile. Include all relevant data on each project, including length, diameter, cost, company, etc.

A2a. Please see ORA-06-C (ORA Confidential Workpapers), pages 05-06 (database of projects) and page 08 (subset).

Q2b. With respect to Page 5, Footnote 12 and PG&E Testimony Regarding PG&E's 2019 GT&S:

- i. Does the data that is used in the set to establish the PG&E hydrotest curve (formula) include Direct costs, Overhead Costs or a blend of both?
- ii. Does PG&E propose specific hydrotest projects for the 2019 GT&S period? If so, please provide a list of those projects.
- iv. What is ORA's understanding of PG&E's proposed cost recovery treatment for its Hydrostatic Testing request (Table 5-12 of PG&E's 2019 GT&S). For example, is PG&E seeking a one-way balancing account?
- v. What is ORA's understanding of the Commission's decision for cost recovery treatment for PG&E's equivalent to its Hydrotesting program in PG&E's current period (2016 GT&S).

A2b. Note: The original request sent to ORA is missing the third level (iii) of question subparts. ORA will respond to the subparts as originally numbered and skip iii for clarity.

ORA responds to this question's subparts as follows:

- i) ORA's witnesses in this proceeding have not performed an in-depth analysis of PG&E's 2019 GT&S filing. Any such analysis will be conducted as part of that proceeding.
- ii) See response to Question 2b-i above.
- iv) See response to Question 2b-i above.
- v) It is ORA's understanding that PG&E's forecasted pipeline replacement and hydrotest costs in the 2016 GT&S use a traditional forecast mechanism. In other words, the approved costs for a given set of projects are provided to PG&E in a "lump sum." If PG&E's actual expense costs exceed the forecast, PG&E shareholders must pay the difference. If PG&E's actual expense costs are under the forecast, PG&E keeps the difference. Capital costs are "trued-up" in future rate cases.

Q2c. Table 1 shows an Applicant cost-per-mile for its 2000-C and 2000-D projects as \$1.395M/mile and \$2.545M/mile, respectively.

- i. Does ORA believe this difference is significant or insignificant?
- ii. What is ORA's understanding or belief as to why there is this difference?
- iii. Please state all reasons why ORA's cost-per-mile calculation for the 2000-C and 2000-D projects are the same.

A2c. It is ORA's understanding that the word "difference" used in this question refers to the per-mile cost difference between these two projects, and not a difference relative to ORA's recommendation, other PSEP project costs, or any other factor. With this understanding, ORA responds to this question's subparts as follows:

- i) It is unclear whether the terms "significant" and "insignificant" refer to some form of statistical significance, a subjective judgement, or some other factor. ORA notes that Project Line 2000-D is approximately 82% more costly than Project Line 2000-C on a per-mile basis.
- ii) It is ORA's understanding that SCG/SDG&E's forecasting tools and/or judgement produced different cost estimates for these two projects.
- iii) ORA's "cost-per-mile calculation" for Lines 2000-C and 2000-D flow from the data and modeling methodology described in ORA-02 (N. Molla) and the hydrotest project analysis described earlier in ORA-04 (N. Stannik).

As stated on page 5, lines 8-12 of ORA-04:

"ORA recommends an allowed pressure test cost of \$1,215,977 per mile. This conservative recommendation is based on comparison of multiple metrics derived from historical hydrotest data. In analyzing the historical hydrotest data, ORA examined two primary indicators: prediction intervals and percentiles of project costs."

Further information on the underlying data, methodology, and recommendations are available in ORA-02 and ORA-04, as well as ORA's workpapers and supporting attachments.

Q2d. Please provide the document referenced in footnote 27 on page 11.

A2d. See ORA-08 (Supporting Attachments Volume 2), page 340.

PACIFIC GAS AND ELECTRIC COMPANY

Gas Operations Data Response

PG&E Data Request Index No.:	11601		
Request Date:	01-02-2018	Date Sent:	01-16-2018
Requesting Party:	CPUC-ORA		
External Requester:	Nusrat Molla	PG&E Contact:	Eileen Cotroneo

QUESTION 11601.01: Please state whether the following costs are included in PG&E's project "Total Cost" as listed in PG&E's Compliance Report 2014 Quarter 4, Tables 11-1 and 11-3:

- a) Office lease costs for PG&E personnel assigned to support PSEP;
- b) Capital component of hydrotests;
- c) LNG/CNG support for projects;
- d) PSEP Project Management Office;
- e) Public Outreach;
- f) Support of PSEP by PG&E Engineering department personnel;
- g) Support of PSEP by Gas Control department personnel;
- h) Support of PSEP by Training department personnel;
- i) Support by PG&E personnel to develop regulatory filings and responses to associated data requests;
- j) Support by PG&E personnel in Operating regions to perform: constructability reviews, clearance procedures development; stand-by; gas handling during tie-ins; isolations for pipelines in preparation for hydrotesting; and similar construction support services.
- k) Liability Insurance for PSEP projects; and
- l) Allowance for Funds Used During Construction.

RESPONSE 11601.01: PG&E directs the Office of Ratepayer Advocates (ORA) to its 2015 Gas Transmission and Storage (GT&S) Rate Case Testimony for Chapter 4A, section 3 on Hydrostatic Testing and PG&E's GT&S Rate Case Rebuttal Testimony to ORA and Tom Roberts on Chapter 4A, beginning on page 4A-42 through 4A-52 on Hydrotest Program Costs.

The two sections referenced above, respective to PG&E's 2015 GT&S Rate Case Testimony and Rebuttal Testimony under Chapter 4A, outline the difference between programmatic spend and project spend. PG&E's PSEP Compliance Report tables 11-1 and 11-3 include costs only for projects that completed construction during the respective reporting periods. Tables 11-1 and 11-3 do not capture all program related costs; Table 20-1 reflects all costs to programs at the Maintenance Activity Type (MAT) code level. Any attempt given to creating an overall programmatic cost profile is discussed in the aforementioned rate case file chapters.

- a) Office lease costs are categorized as company overhead type costs and remain allocated as described in PG&E Response 11601.05 below.

- b) As of the fourth quarter in 2014, capital costs for Hydrotest were not included on project orders and were tracked in a separate MAT code, MAT 2H2. Tables 11-1 and 11-3 in the PSEP Compliance Report for Hydrotest only show the expense related costs.
- c) LNG/CNG support on a specific project was charged directly to the projects.
- d) The Project Management Office (PMO) costs are split depending on the group. PG&E's GT&S Rate Case Testimony to Chapter 9 offers the outline of PMO cost split, which is consistent with how PMO costs were charged in PSEP.
- e) Public outreach was required on the project and therefore the costs were charged directly to the project.
- f) Support provided by PG&E Engineering department personnel is charged directly to the project.
- g) Support provided by PG&E Gas Control department personnel on specific projects is charged to specific projects.
- h) Support provided by PG&E Training department personnel is considered a company overhead unless the training was project specific.
- i) Support provided by PG&E personnel to develop regulatory filings and responses to associated data requests is considered a company overhead.
- j) The various construction support services provided by PG&E personnel in Operating regions are charged directly to projects.
- k) Liability Insurance for PSEP projects is considered a company overhead.
- l) Allowance for Funds Used During Construction is charged directly to projects.

QUESTION 11601.02: For any of the twelve cost items in Question 1 above not included in the referenced Compliance Report, please describe if and how PG&E recovers these costs.

RESPONSE 11601.02: There are no additional cost items to add to the 12 items listed in Question 1 for the PSEP Compliance Reports.

QUESTION 11601.03: Are there any cost categories not listed in Question 1 above that are included PG&E's project "Total Cost"? If so, please describe these costs.

RESPONSE 11601.03: The cost category, Materials, is missing from the items outlined in Question 1. Materials are charged directly to the respective project.

QUESTION 11601.04: PG&E's Compliance Report 2014 Quarter 4, Tables 11-2 and 11-4 on pages 28 and 29, respectively, state that the total project cost includes overhead. Please state whether the following company overhead-type costs are included in total project costs:

- a) Payroll Tax;
- b) Vacation and Sick time;
- c) Benefits (excluding pensions and other post-retirement benefits);
- d) Workers' Compensation;
- e) Public liability/Property Damage;
- f) Incentive Compensation Plan;
- g) Purchased Services and Materials;
- h) Administrative and General; and
- i) Insurance.

RESPONSE 11601.04: In 2014, PG&E used a different cost model where labor resources charged their time to projects and overhead costs were included. Note, not all the cost categories shown below would have been fully burdened.

- a) Payroll Tax was included in the labor rate.
- b) Vacation and Sick time were included in the labor rate.
- c) Benefits (excluding pensions and other post-retirement benefits) were included in the labor rate.
- d) Workers' Compensation was not included in the labor rate; this is accounted for in a separate Provider Cost Center (PCC) and accounted for outside Major Work Categories (MWCs).
- e) Public liability/Property Damage was not included in the labor rate; this is directly accounted for in the Order, when applicable.
- f) Incentive Compensation Plan: Rewards & Recognition (R&R) was included in the labor rate; Long Term Incentive Plan/Short Term Incentive Plan (LTIP/STIP) was accounted for in the Holding Company outside of the MWCs included in the Transmission Pipeline Compliance Report (TPCR) scope.
- g) Purchased Services and Materials were included in the labor rates or charged directly to Orders.
- h) Administrative and General costs were allocated to Capital work via Cap A&G OH, if not already cleared via labor rates.
- i) Insurance was not included in the labor rates and charged directly to Orders, when applicable.

QUESTION 11601.05:

- a) For any of the nine cost items in Question 3 above included in the referenced Compliance Report total costs, please describe how these overhead costs are added to PG&E PSEP project costs.
- b) For any of the nine cost items in Question 3 above not included in the referenced Compliance Report total costs, please describe if and how PG&E recovers these costs.

RESPONSE 11601.05:

- a) As stated in PG&E Response 11601.04, labor rates were fully burdened in 2014. PSEP would have accumulated overhead costs in the same manner as described above.
- b) For the costs not referenced in the Compliance Report, PG&E had other approved recovery methods. For example, some costs may be accounted for in different lines of business but are still recovered through rates. Additionally, some of the costs aren't necessarily recovered per se, the Short-Term Incentive Plan (STIP) for example, which is partially recovered through rates and partially covered by the Holding Company leveraging net revenue.