

**SAN DIEGO GAS & ELECTRIC COMPANY
SOUTHERN CALIFORNIA GAS COMPANY
PIPELINE SAFETY & RELIABILITY PROJECT (PSRP)
(A.15-09-013)
(DATA REQUEST ORA-31)
Date Requested: August 12, 2016
Date Responded: August 29, 2016**

PRELIMINARY STATEMENT

1. These responses and objections are made without prejudice to, and are not a waiver of, SDG&E and SoCalGas' right to rely on other facts or documents in these proceedings.
2. By making the accompanying responses and objections to these requests for data, SDG&E and SoCalGas does not waive, and hereby expressly reserves, its right to assert any and all objections as to the admissibility of such responses into evidence in this action, or in any other proceedings, on any and all grounds including, but not limited to, competency, relevancy, materiality, and privilege. Further, SDG&E and SoCalGas makes the responses and objections herein without in any way implying that it considers the requests, and responses to the requests, to be relevant or material to the subject matter of this action.
3. SDG&E and SoCalGas will produce responses only to the extent that such response is based upon personal knowledge or documents in the possession, custody, or control of SDG&E and SoCalGas. SDG&E and SoCalGas possession, custody, or control does not include any constructive possession that may be conferred by SDG&E or SoCalGas' right or power to compel the production of documents or information from third parties or to request their production from other divisions of the Commission.
4. A response stating an objection shall not be deemed or construed that there are, in fact, responsive information or documents which may be applicable to the data request, or that SDG&E and SoCalGas acquiesces in the characterization of the premise, conduct or activities contained in the data request, or definitions and/or instructions applicable to the data request.
5. SDG&E and SoCalGas objects to the production of documents or information protected by the attorney-client communication privilege or the attorney work product doctrine.
6. SDG&E and SoCalGas expressly reserve the right to supplement, clarify, revise, or correct any or all of the responses and objections herein, and to assert additional objections or privileges, in one or more subsequent supplemental response(s).
7. SDG&E and SoCalGas will make available for inspection at their offices any responsive documents. Alternatively, SDG&E and SoCalGas will produce copies of the documents. SDG&E and SoCalGas will Bates-number such documents only if SDG&E and SoCalGas deem it necessary to ensure proper identification of the source of such documents.
8. Publicly available information and documents including, but not limited to, newspaper clippings, court papers, and materials available on the Internet, will not be produced.

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9. SDG&E and SoCalGas object to any assertion that the data requests are continuing in nature and will respond only upon the information and documents available after a reasonably diligent search on the date of its responses. However, SDG&E and SoCalGas will supplement its answers to include information acquired after serving its responses to the Data Requests if it obtains information upon the basis of which it learns that its response was incorrect or incomplete when made.
10. In accordance with the CPUC's Discovery: Custom And Practice Guidelines, SDG&E and SoCalGas will endeavor to respond to ORA's data requests by the identified response date or within 10 business days. If it cannot do so, it will so inform ORA.
11. SDG&E and SoCalGas object to any ORA contact of SDG&E and SoCalGas officers or employees, who are represented by counsel. ORA may seek to contact such persons only through counsel.
12. SDG&E and SoCalGas objects to ORA's instruction to send copies of responses to entities other than ORA.

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Subject: Cost Effectiveness Analysis in A.15-09-013 by PWC and Neil Navin Prepared Testimony Attachment A & B PSRP Report and Mr. David Bisi Prepared Testimony in A.15-09-013

QUESTION 1:

Section C “Increased Operational Flexibility” on page 48 of the CEA states: Increased operational flexibility is defined as the ability of the system to respond to operational (supply or demand) uncertainty in a manner that sustains normal operations with minimal impact to customers. Incremental pipeline capacity can provide flexibility to operate the Applicants’ system by expanding the options available to handle stress conditions on a daily and hourly basis that put system integrity and customer service at risk.

Operational flexibility¹⁰² can be improved through the following means:

1. Increased capacity to handle intra-day or peak demand fluctuations; and
2. The ability to control day-to-day operations of the system without reliance on external systems or entities (complete asset control)

Footnote 102 of the CEA cites reference to Mr. David Bisi’s Prepared Testimony. The increased operational flexibility benefits scoring criteria were described based on two “operational flexibility benefits”:

1. Meeting current and future natural gas peak demand
2. Utility Operational Control of Asset

With regard to the first benefit, the scoring criteria states:

“Ability to meet increasingly volatile daily and hourly peak demand due to: increased reliance on gas fired EG to supplement closure of the San Onofre Nuclear Generating Station (SONGS) and dependence on intermittent renewable power; need to meet future peak demand due to increases in the use of renewable energy sources (up to 50% renewable generation by 2030); forecasted growth in the population of the San Diego greater metropolitan area (up by 1 million people by 2035).”

With regard to the second benefit, the scoring criteria states:

“Ability to control the physical asset by SDG&E.” On the same page 48 of the CEA, the scale for scoring the projects against the first benefit are reproduced as shown below:

1. No ability to meet current peak or future peak demand.
2. Decrease in the ability to meet current peak or future peak demand.

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3. No increase in the ability to meet current peak or future peak demand.
 4. Improved ability to meet current peak demand, but unlikely to meet future forecast peak demand.
 5. Ability to meet and/or exceed the demands of current and all predicted future peak demand through 2035.

The scale for scoring the projects against the 2nd benefit is “binary” as shown below:

1. Utility does not have operational control over asset
 2. N/A
 3. N/A
 4. N/A
 5. Utility has operational control over asset
- (a) Please identify the “current peak” or “future peak demand” that was in use for purposes of scoring all the projects against the first benefit described in the above statements.
 - (b) Please cite the source reference for the “current peak” or “future peak demand” identified in item (a) above and explain how that compares to the current and forecast numbers from latest California Gas Report (2016).
 - (c) With respect to the first benefit, please explain whether the projects were all tested and measured against the same set of scenario conditions in model runs described in the scoring criteria “Ability to meet increasingly volatile daily and hourly peak demand due to:....forecasted growth in the population of the San Diego greater metropolitan area (up by 1million people by 2035).”
 - (d) Please describe the scenario or scenarios used for purposes of testing the Project Alternatives on how well each one enables the system to respond to operational uncertainty.
 - (e) With respect to the 2nd benefit where the scale for scoring is binary (i.e., no asset control versus complete asset control), please explain whether there were any scenario model runs which tests each Project Alternative for the ability to control day to day operations of the system, and if so, please describe those scenarios.
 - (f) Please describe and fully explain the specific metric that indicates to the Applicants that the particular project examined for “operational flexibility benefits” possess “No ability to meet current peak or future peak demand.”
 - (g) Please describe and fully explain the specific metric that indicates to the Applicants that the particular project examined for “operational flexibility benefits” show “Decrease in the ability

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to meet current peak or future peak demand” or “No increase in the ability to meet current peak or future peak demand.”

- (h) Please describe and fully explain the specific metric that indicates to the Applicants that the particular project examined for “operational flexibility benefits” show “Improved ability to meet current peak demand, but unlikely to meet future forecast peak demand.”
- (i) Please describe and fully explain the specific metric that indicates to the Applicants that the particular project examined for “operational flexibility benefits” show “Ability to meet and/or exceed the demands of current and all predicted future peak demand through 2035.”

RESPONSE 1:

- a) See response to ORA DR 30, Question 2(h). Additionally, SDG&E and SoCalGas (Applicants) used their system knowledge, operational experience and engineering judgment to consider the ability of the Proposed Project and the alternatives to meet anticipated increasingly volatile daily and hourly peak gas demand in the future due to the need for the gas system to quickly serve local gas-fired electric generation called upon to make up for rapid changes in the growing portfolio of intermittent renewable electric generation. During periods of the day, hourly gas demand can exceed supply causing the system to lose pressure and line pack, which could lead to curtailments if pressure or line pack drop below system operation minimums. The effects of the growing reliance of intermittent renewable generation are anticipated to exacerbate this situation. See generally the Prepared Direct Testimony of David Bisi at pages 10-16. This situation was factored into the benefits evaluation for operational flexibility as part of being able to meet natural gas peak demand.
- b) See response to Question 1(a) above. The current and future peak demand, including fluctuating hourly demand, cannot be compared to the 2016 California Gas Report (CGR). The 2016 CGR only includes the average annual assessment and does not include Applicants’ need to serve the intra-day demands of their customers. Applicants used their operational experience and engineering judgment as a source for the understanding and evaluation of this parameter.
- c) No model runs were conducted to test the projects. Applicants applied consistent engineering judgment and operational experience to assess each potential project.
- d) Scoring this benefit was based on SDG&E and SoCalGas subject matter expertise.

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- e) No scenario models were run. Applicants applied consistent engineering judgment and operational experience to assess each potential project.
 - f) Applicants evaluated the assumed capacity for each of the Alternatives and compared that to estimates of current and future peak demand including the intraday volatility of gas demand as explained in response to Question 1(a) above. None of the project Alternatives received the score “[No] ability to meet current peak or future peak demand.”
 - g) Applicants compared the assumed capacity for each Alternative project to the current system capacity. Alternative projects with assumed capacity less than the current system were scored as “[d]ecrease in the ability to meet current peak or future peak demand.” Alternative projects with assumed capacity equal to the current system were scored as “[n]o increase in the ability to meet current peak or future peak demand.” Additional on-system capacity is associated with improved flow characteristics and provides higher levels of working line pack, which improve the ability to meet peak demand, including the volatile intraday demands.
 - h) Applicants compared the assumed capacity for each Alternative project to the current system capacity. Alternative projects with assumed capacity greater than the current system, but not sufficient to meet estimated future peak demand, were scored as “[i]mproved ability to meet current peak but unlikely to meet future forecast peak demand.” Additional on-system capacity is associated with improved flow characteristics and provides higher levels of working line pack which improve the ability to meet peak demand including the volatile intraday demands.
 - i) Applicants compared the assumed capacity for each Alternative project to the current system capacity. Alternative projects with assumed capacity sufficient to meet estimated future peak demand, were scored as “[a]bility to meet and/or exceed the demands of current and all predicted future peak demand through 2035.” Additional on-system capacity is associated with improved flow characteristics and provides higher levels of working line pack which improve the ability to meet peak demand including the volatile intraday demands.

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QUESTION 2:

Table 17 shows that against the first benefit, the Proposed Project along with several Alternatives, obtained a score of 5, which include Alternative Diameter 42", the Otay Mesa Alternatives, the Offshore Route, Blythe to Santee Alternatives 1&2, Cactus City to SD Alternative, and 2nd Pipeline Along Line 3010. A score of 5 on the scale means "Ability to meet and/or exceed the demands of current and all predicted future peak demand through 2035."

Further, Table 17 shows that only three Alternatives with Diameters 20", 24", and 30" – had obtained a score of 4 against the first benefit. A score of 4 on the scale means "Improved ability to meet current peak demand, but unlikely to meet future forecast peak demand."

Table 17 shows several Project Alternatives which obtained a score of 3 against the first benefit: Hydro test Alternative, Alternative Diameter 16", Replace 1600 In-Place, LNG Storage, Alternative Energy-Grid Scale, and Alternative Energy Smaller Scale. A score of 3 on the scale means "No increase in the ability to meet current peak or future peak demand."

Finally, Table 17 shows that Alternative Diameter 10" and Alternative Diameter 12" each obtained a score of 2 against the first benefit. A score of 2 against the first benefit in the scale for scoring means "Decrease in the ability to meet current peak or future peak demand."

Table 17 of the CEA shows that all projects, except the Otay Mesa Alternatives, obtained a core of 5 against the 2nd benefit. As shown in Table 17, the Otay Mesa Alternatives obtained a score of 1 against the 2nd benefit.

- (a) Please provide the starting point of the scenario analysis by describing the current ability of the system to meet current peak or future peak demand. Is it accurate to say that the scoring scale rates how well each of the Project Alternatives allow the system to respond operationally to the scenario changes as these are introduced in the model runs? Please respond with a yes or no, and then explain.
- (b) Table 17 shows that against the first benefit, no Project Alternative obtained a score lower than a 2. Please explain whether this absence of a score of 1 ("No ability") indicates that each of the Project Alternatives have potential to enable the system to change the current ability to meet current peak or future peak demand, that is, either to decrease the ability or increase the ability to meet current peak or future peak, although by varying degrees of improvement.

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- (c) To obtain a score of 4, please explain the extent of “improved ability” compared to the current ability of the system to meet current peak but unlikely to meet future peak described in the starting point of the scenario analysis described in item (a).
- (d) Between obtaining a score of a 4 or a 5 on the scale, the difference in the scale appears to be the potential to meet future forecast peak demand. Please describe the specific metric that indicates to the Applicants whether a Project Alternative is “unlikely to meet future forecasted peak demand” although the Project Alternative “improved ability to meet current peak demand” as shown for the Project Alternatives that obtained a score of 4 in Table 17.
- (e) Please describe and provide “all predicted future peak demand through 2035” in use for purposes of the scenario analysis that were met by Project Alternatives which obtained a score of 5 as shown in Table 17.

RESPONSE 2:

- a) See response to Question 1(a) above. The Project Alternatives were not assessed using model runs. Instead, scoring of the Project Alternatives is based on the experience and expertise of the SDG&E and SoCalGas team members who operate the system. The scoring scale rates how well each of the Project Alternatives allow the system to respond operationally to current and future peak demands, including intra-day fluctuations in demand using the current state as a baseline.
- b) None of the Alternatives received a score of 1 (no ability to meet current or future peak demand). This indicates that all of the Alternatives have some ability to meet current or future peak demand.
- c) Applicants compared the assumed capacity for each Alternative project to the current system capacity for both daily throughput as well as peak hourly demands caused by intraday volatility as explained in the response to Question 1(a) above. Alternative projects with assumed capacity greater than the current system, but not sufficient to meet estimated future peak demand, were scored a 4 - “[i]mproved ability to meet current peak but unlikely to meet future forecast peak demand.”
- d) Those Alternatives with assumed capacity to meet future peak forecast demand (both daily and intraday peak hourly demand) received a score of 5. Those Alternatives with assumed capacity greater than the current system but not sufficient to meet future peak forecast demand received a score of 4.

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- e) See response to Question 1(a) above. The scenarios are further explained in the Prepared Direct Testimony of Dave Bisi at pages 6 through 16. Additionally, the interdependency of the gas and electric systems, and the resulting increase in intraday volatility of the gas load, is explained in the Prepared Direct Testimony of Ali Yari at pages 6 through 19.

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QUESTION 3:

Pages 49-50 of the CEA provides a discussion of the results of the increased operational flexibility benefits evaluation. The discussion explains that the Proposed Project is expected to increase the transmission capacity of the gas system in San Diego County by approximately 200 MMcfd. This increase in capacity will enhance the Applicants' ability to reliably manage the fluctuating peak demand of core and noncore customers, including electric generation (EG) and clean transportation. The new line would provide incremental system capacity and increase operational flexibility by expanding the options available to handle stress conditions on a daily and hourly basis that put customer service at risk. The Proposed Project is able to meet and/or exceed the demands of current and all predicted future peak demand through 2035."

In addition, ORA notes that page 64 of the 2016 California Gas Report (CGR) states:

"SoCalGas projects total gas demand to decline at an annual rate of 0.6% from 2016 to 2035. The decline in throughput demand is due to modest economic growth, CPUC-mandated energy efficiency (EE) standards and programs, renewable electricity goals, the decline in commercial and industrial demand, and conservation savings linked to Advanced Metering Infrastructure (AMI). By comparison, the 2014 CGR projected an annual decline in demand of 0.33% over the forecast horizon. The difference between the two forecasts is caused primarily by more modest meter and employment growth forecasts than those embodied in the 2014 *California Gas Report*. The following chart shows the composition of SoCalGas' throughput for the recorded year 2015 (with weather-sensitive market segments adjusted to average year heating degree day assumptions) and forecasts for the 2016 to 2035 forecast period."

With respect to the SDG&E gas demand outlook, p. 111 of the 2016 CGR states: "SDG&E's gas demand forecast is largely determined by the long-term economic outlook for its San Diego County service area. The county's economic trends are expected to generally parallel those of the larger SoCalGas area as discussed above. This projection of natural gas requirements, excluding electric generation (EG) demand, is derived from models that integrate demographic assumptions, economic growth, energy prices, energy efficiency programs, customer information programs, building and appliance standards, weather and other factors. Non-EG gas demand is projected to remain virtually flat between 2015 and 2035. Overall demand adjusted for average temperature conditions totaled 126 Bcf in 2015. By the year 2035, the total demand is expected to reach 115 Bcf. The change reflects an annual average decline of 0.40%. Assumptions for SDG&E's gas transportation requirements for EG are included as part of the wholesale market sector description for SoCalGas."

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- (a) Please compare the scenario analysis on gas demand to test on ability to meet current peak or future peak demand against the gas demand described above on p.64 and p.111 of the 2016 California Gas Report.
- (b) Please explain the basis on the “predicted future peak demand through 2035” and compare against the against the gas demand described above on p.64 and p.111 of the 2016 California Gas Report.
- (c) Please cite the document reference in the proceeding where the Applicants demonstrate the need for the 200 MMcfd increase in capacity when the Proposed Project starts in service.
- (d) Is the 200 MMcfd increase in capacity a necessary assumption? [Note: Please clarify whether the Proposed Project obtained a score of 5 against the first benefit described in Question 1 mainly because of the 200 MMcfd increase in capacity associated with the alternative, and that without the 200 MMcfd increase in capacity assumed in the scenario, the Proposed Project would instead have obtained a lower score against the first benefit of operational flexibility.]
- (e) Please clarify whether the other Project Alternatives that obtained a score of 5 against the first benefit described in Question 1 similarly increased system capacity by 200 MMcfd (similar to the Proposed Project). [Note: Need to clarify the extent each of the other Project Alternatives increased system capacity compared to the Proposed Project.]
- (f) Please briefly describe “the fluctuating peak demand of core and noncore customers, including electric generation (EG) and clean transportation” to be managed as described in the above statements.

RESPONSE 3:

- a) The annual data on the pages 64 and 111 of the 2016 CGR cannot be used to evaluate the Alternatives because the referenced pages provide only annual demand data. The gas system must be able to meet peak daily demands as well as peak intraday demands. Please see the response to Question 1(a) above and the Prepared Direct Testimony of David Bisi at pages 6 through 16. Increased capacity compared to the current state allows these demand criteria to be better served.
- b) See response to Question 3(a) above.
- c) See the Prepared Direct Testimony of David Bisi, pages 6 to 16. As Mr. Bisi explains, the additional 200 MMcfd is not required to meet mandated design standards for core and

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non-core customers through the 2035/2036 operating year (note that this testimony is based upon an MAOP for Line 1600 of 640 psig), but the increase in capacity will have value beyond design standards. The increased capacity provides improved reliability and operational flexibility, resulting in an improved ability to meet daily and intraday peak demands, especially in stress situations when part of the Moreno Compressor Station may be out of service for maintenance and/or other elements of the pipeline system are out of service for maintenance or due to emergencies. This is especially important for reliability reasons as the San Diego region is currently dependent on Line 3010 for delivering approximately 90% of gas demand, and as explained in the Prepared Direct Testimony of Jani Kikuts, an interruption of this line could have dire consequences. Increased capacity associated with a new pipeline helps to mitigate this reliability risk.

- d) The 200 MMcfd is the assumed increased in capacity that the Proposed Project and certain Alternatives would provide. The Proposed Project and the 7 Alternatives that scored a 5 did so because of their assumed ability to meet or exceed current and future peak demand, and providing reliability and operational flexibility improvements as described in response to Question 3(c) above.
- e) The Proposed Project and the 7 Alternatives that scored a 5 did so because of their assumed ability to meet or exceed current and future peak demand, including fluctuating hourly demands. Applicants assume that the Alternative projects that include a 36" pipeline (Alternatives I, J1, J2, J3 and K) have the same capacity as the Proposed Project. Applicants did not determine the capacity for the other diameter pipelines.
- f) See the Prepared Direct Testimony of Douglas Schneider, page 19 line 8 to page 20, line 10.

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QUESTION 4:

Page 50 of the CEA states:

“There will be no increase in system capacity after the hydro testing on Line 1600 is complete, and a potential short-term decrease in system capacity during the hydro testing of Line 1600. In order to backfill the loss of supply from Line 1600 (~100 MMcfd), natural gas would have to be imported from Otay Mesa.”

“The lack of any increase in system capacity results in no change to the current operational flexibility and therefore no increase in the ability to meet current peak or future peak demand.”

“Under this option the Applicants retain operational control of the asset.”

Attachment B of Mr. Navin’s Testimony describes the technical aspects of how Line 1600 could be hydro tested. Attachment B states that “only one test can be performed at a time since a flow path must be maintained either from the south or the north.”

- (a) Is it accurate to say that the Hydro test Alternative obtained a score of 3 against the first benefit described in Question 1 mainly because of the lack of any increase in system capacity? Please respond with a yes or no and then explain.
- (b) Please describe the potential amount of short-term decrease in system capacity during the Hydro testing of Line 1600 given the information from Attachment B that “only one test can be performed at a time....”.
- (c) Does the assumed loss of supply from Line 1600 of approximately 100 MMcfd consider the given information from Attachment B that that “only one test can be performed at a time....”.
- (d) Please confirm whether the Applicants have previously imported natural gas from Otay Mesa. If so, please describe the circumstances under which those importations were done.

RESPONSE 4:

- a) Yes, appreciable increase in system capacity is not expected after hydrotesting Line 1600.
- b) The potential short term decrease in system capacity during hydrotesting is approximately 100 MMcfd, the current capacity of Line 1600.

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c) Yes.

d) Gas has only been imported through the Otay Mesa receipt point on a few occasions driven by non-standard events. Gas was scheduled at Otay Mesa by Gas Acquisition and the California Energy Hub (CEH) to maintain system reliability in support of maintenance activity and during a force majeure event on the El Paso Southern System in February 2011.

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QUESTION 5:

Pages 51 through 53 of the CEA provides a description of “Increased System Capacity” benefits and states:

“The Proposed Project and Alternatives were evaluated in terms of increased system capacity. The three elements of operational flexibility are:”

- No change to system capacity
- Increased system capacity
- Decreased system capacity

Item 4.1 on page 52 describes “Impact to system capacity stating:¹⁰³”

“Ability of the project option to increase current system capacity. This impact is based on the diameter of the pipe and other critical design features. Increased system capacity can also help improve the system’s ability to meet additional load demands if the need arises. During intra-day, peak or extreme weather demand fluctuations, extra capacity can help bridge the gap between design and higher load scenarios “

Footnote 103 cites reference to the Prepared Testimony of Mr. David Bisi.

The scale for scoring the projects against this benefit is:

1. Reduces system capacity by more than 20%
2. Reduces system capacity by up to 20%
3. No change to system capacity
4. Increases system capacity by up to 20%
5. Increases system capacity by more than 20%

Table 20 shows the results of the increased capacity scoring where the Proposed Project and Alternative Diameter 30” and 42” score 5 as well as the Otay Mesa Alternatives, the Offshore Route, the Blythe to Santee Alternative 1, Blythe to Santee Alternative 2, the Cactus City to SD Alternative, and the 2nd Pipeline Along Line 3010 Alternative all score a 5. A score of 5 on the scale against this benefit of increased capacity means “Increases system capacity by more than 20%.”

- (a) Please state the current system capacity which is in use to benchmark “increases” in system capacity.

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- (b) Please clarify whether the current system capacity stated in item (a) above is for the SDG&E gas system or for the integrated SoCalGas/SDG&E gas transmission system, and if not, please explain.
- (c) Please explain the basis for the choice of “increases system capacity by more than 20%” as the preferred outcome in terms of impact to system capacity.
- (d) Please explain the amount of “extra capacity” considered to be needed to “help bridge the gas between design and higher load scenarios.”

RESPONSE 5:

- a) See the Prepared Direct Testimony of David Bisi, page 8, line 6.
- b) The current system capacity stated in response to Question 5(a) above is for the SDG&E gas system.
- c) The scoring scale was not devised based on preferred outcomes. Rather, the scale was set up in 20% increments solely on the basis of a 5 point rating scale ($100\% / 5 = 20\%$).
- d) Extra capacity is needed to meet conditions that exceed 1-in-10 design days. This extra capacity also provides improved operating margin and flexibility for the overall system to meet peak daily demands, including the volatile intraday peak hourly flows, and also for the situation where one or more elements of the transmission system may be out of service for maintenance or emergency reasons.