SAN DIEGO GAS & ELECTRIC COMPANY
SOUTHERN CALIFORNIA GAS COMPANY

PIPELINE SAFETY & RELIABILITY PROJECT (PSRP)

(A.15-09-013)

(6th DATA REQUEST FROM TURN)

Date Requested: March 1, 2017
Date Responded: March 8, 2017

PRELIMINARY STATEMENT

1. These responses and objections are made without prejudice to, and are not a waiver of, SDG&E's 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 do 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, as set forth in the California Public Utilities Commission ("Commission or CPUC") Rules of Practice and Procedure. SDG&E and SoCalGas possession, custody, or control does not include any constructive possession that may be conferred by SDG&E's and 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 expressly reserves 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).

6. 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.

7. Publicly available information and documents including, but not limited to, documents that are part of the proceeding record, newspaper clippings, court papers, and materials available on the Internet, will not be produced.

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GENERAL OBJECTIONS

1. SDG&E and SoCalGas object to each instruction, definition, and request to the extent that it purports to impose any requirement or discovery obligation greater than or different from those under the CPUC Rules of Practice and Procedure, Statutes, and the applicable Orders of the Commission.

2. SDG&E and SoCalGas object to each request that is overly broad, unduly burdensome, or not reasonably calculated to lead to the discovery of admissible evidence.

3. SDG&E and SoCalGas object to each instruction, definition and data request to the extent that it seeks information protected from disclosure by the attorney-client privilege, deliberative process privilege, attorney work product doctrine, or any other applicable privilege. Should any such disclosure by SDG&E and SoCalGas occur, it is inadvertent and shall not constitute a waiver of any privilege.

4. SDG&E and SoCalGas object to each instruction, definition and data request as overbroad and unduly burdensome to the extent it seeks documents or information that are readily or more accessible to TURN from TURN's own files, from documents or information in TURN's possession, or from documents or information that SDG&E and SoCalGas previously released to the public or produced to TURN. Responding to such requests would be oppressive, unduly burdensome, and unnecessarily expensive, and the burden of responding to such requests is substantially the same or less for TURN as for SDG&E and SoCalGas.

5. SDG&E and SoCalGas object to each instruction, definition and data request to the extent that it seeks the production of documents and information that were produced to SDG&E and SoCalGas by other entities and that may contain confidential, proprietary, or trade secret information.

6. To the extent any of TURN's data requests seek documents or answers that include expert material, including but not limited to analysis or survey materials, SDG&E and SoCalGas object to any such requests as premature and expressly reserves the right to supplement, clarify, revise, or correct any or all responses to such requests, and to assert additional objections or privileges, in one or more subsequent supplemental response(s) in accordance with the time period for exchanging expert reports set by the Commission.

7. SDG&E and SoCalGas incorporate by reference every general objection set forth above into each specific response set forth below. A specific response may repeat a general objection for emphasis or some other reason. The failure to include any general objection in any specific response does not waive any general objection to that request. Moreover, SDG&E and SoCalGas do not waive their right to amend any responses.

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QUESTION 1:

Follow up to the Confidential map provided in response to ORA DR 64-01:

a. Please identify the regulator station (name and location on map) that could reduce the pressure on Line 1600 to 320 psi.

b. How far downstream, in miles, is the first take off, that directly serves customers, from the regulator station that reduces the pressure on Line 1600 to 320 psi?

RESPONSE 1:

a. As part of the Proposed Project, a new pressure limiting station would be constructed at the Rainbow Metering Station, which would feed gas into Line 1600 at pressures not to exceed 320 psig. This location is shown on the map, provided in response to ORA DR 64, Q1, as the most northern point of Line 1600.

   As part of the Proposed Project, another new pressure limiting station is planned at the location where proposed Line 3602 is planned to parallel Line 1600 near Lake Hodges. This new station would feed gas into Line 1600 at pressures not to exceed 320 psig. Referring to the map provided in response to ORA DR 64 Q1, the location of this proposed pressure limiting station is on the north side of Lake Hodges just north of the main line valve depicted on the map in the open area which separates the communities of Escondido and Rancho Bernardo.

   A third pressure limiting facility already exists at the Kearny Villa location feeding into Line 1600. This station would be reconfigured so that the pressure of gas flowing into Line 1600 at this location would not exceed 320 psig. This location is shown on the map, provided in response to ORA DR 64, Q1, on the Marine Corps Air Station (MCAS) Miramar base as the intersection of Line 1600 with Line 3011 and Line 2010.

b. The first tap off of Line 1600 near the proposed Rainbow Pressure Limiting Station is approximately 1.7 miles south of the proposed station. The nearest tap off of Line 1600 near the proposed Lake Hodges Pressure Limiting Station is approximately 0.2 miles north. The nearest tap off of Line 1600 in the area of the Kearny Villa Pressure Limiting Station is approximately 0.7 miles north of the pressure limiting station.

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QUESTION 2:

Please provide one hard copy of all "updated testimony" and "supplemental testimony" submitted on 2/21/17.

RESPONSE 2:

A hard copy was sent on 3/7/17 via FedEx to the following address:

Marcel Hawiger
The Utility Reform Network (TURN)
785 Market Street, Suite 1400
San Francisco, CA 94103

SAN DIEGO GAS & ELECTRIC COMPANY
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QUESTION 3:

Please provide an updated table, as shown on page 40 of the updated application, using the *2016 California Gas Report* volumes.

RESPONSE 3:

An updated table has already been provided. Please see SDGE-12: Supplemental Testimony of San Diego Gas & Electric Company and Southern California Gas Company filed on February 21, 2017 at page 84, Table 5.

https://www.socalgas.com/regulatory/documents/a-15-09-013/SDGE-12%20A.15-09-013%20Supplemental%20Testimony%20of%20SDGE%20and%20SoCalGas.pdf

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QUESTION 4:

Please confirm that if Line 1600 is de-rated to distribution level service that hydrostatic testing and the associated $118.7 million in cost (Mr. Doug Schneider direct testimony pg. 24 Table 1) would not be needed.

RESPONSE 4:

No, it is not accurate that the entire $118.7 million would not be needed. As explained in the Cost-Effectiveness Analysis (CEA) at Section IV, the $118.7 million represents the net cost associated with the Hydrotest Alternative. This figure is comprised of an estimated $112.9 million in direct costs associated with hydrotesting Line 1600 as described in the Application, and $5.8 million associated with the present value of O&M and TIMP costs for the next 100 years. Please see the cost analysis section of the CEA at page 19-33. CEA, Table 8 at page 32 provides a breakout of relevant cost components.

Should Line 1600 be de-rated without hydrotesting, the estimated $112.9 million associated with performing the hydrotest would not be needed. However, there are additional capital costs associated with de-rating the pipeline that would be required, as would ongoing funding for O&M activities related to the pipeline operating as a distribution asset. For the alternatives included in this Application that involve de-rating Line 1600, the capital costs to be incurred are included in the fixed cost estimates for each alternative as shown in the previously referenced CEA Table 8. Similarly, Table 8 of the CEA also provides the estimate of the present value of future O&M costs and future avoided costs for each alternative.

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QUESTION 5:

Please provide the increased annual core customer distribution cost and cost per therm and cost per MMbtu if Line 1600 is removed from transmission BTS service to distribution service for SCG's and SDG&E's core customer classes of service.

RESPONSE 5:

For core customers, the annualized 2021 incremental revenue requirement related to Line 1600 de-rating is forecast at $5.2 million for SDG&E and $6 thousand for SoCalGas. The forecasted impact to 2021 transportation rates is $0.01015/therm ($0.1015 / MMBTU) for SDG&E and $0.0000/therm ($0.0000 per MMBTU) for SoCalGas. (Note: the 2021 revenue requirement of $3.9 million is grossed up to $5.2 million in order to recover the amount over 9 months due to the assumed in-service date of March 2021).

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QUESTION 6:

Please provide the current average daily and maximum daily throughput in MMCF/d of Line 1600 and if Line 1600 is de-rated to distribution service and Line 3010 is operated as it is currently operated without a new Line 3002.

RESPONSE 6:

Please see SDGE-12 Supplemental Testimony of SDG&E and SoCalGas at page 164. Table 8 provides the current average daily volumes (by month) and Table 9 provides the maximum daily volumes (by year) of supply delivered to Line 1600 at the Rainbow Metering Station. As set forth in numerous data request responses, which are posted on SDG&E's and SoCalGas' website, Line 1600 de-rated to a distribution pressure (320 psig) does not contribute to the SDG&E system throughput and serves only as a distribution supply line. See responses to ED DR 2, Q2; ORA DR 43, Q5; ORA DR 50, Q4; SCGC DR 8, Q12; SCGC DR 9, Q1; Sierra Club DR 5, Q1, which are posted on Applicants' website.

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QUESTION 7:

Regarding Navin Testimony of 3/21/16, p. 15-16:

a. Please provide the MAOP of the current transmission service Line 1600

b. Please provide the proposed MAOP if Line 1600 is de-rated to distribution service. Please explain the basis for the distribution service MAOP.

c. Please explain why there is a need to maintain 400 psi "in the most critical distribution supply line systems." Please provide citations to testimonies or data responses that address this issue, including confidential responses.

d. Please explain how "three new regulator stations" would maintain 400 psi of pressure. What equipment is necessary to increase pressure from 320 to 400 psi.

e. Please identify the "critical distribution supply line systems" that require 400 psi of pressure.

RESPONSE 7:

Please note that responsibility for the Prepared Direct Testimony of Neil Navin has been assumed by Norm G. Kohls. Going forward, please refer to SDGE-8-R Updated Prepared Direct Testimony of Norm G. Kohls served on February 21, 2017. As explained in SDGE-8-R, aside from reflecting the witness change and a few updates (detailed in a change log appended thereto), the contents of the testimony have not changed from the version originally tendered on March 21, 2016.

a. Please refer to SDGE-8-R Updated Prepared Direct Testimony of Norm G. Kohls, page 15, lines 11 – 12. Please note, on July 8, 2016, SDG&E was ordered to reduce the MAOP of Line 1600 further to 512 psig. Applicants would seek to restore Line 1600 to an MAOP of 640 psig if Line 1600 is pressure tested.

b. Please refer to SDGE-8-R Updated Prepared Direct Testimony of Norm G. Kohls, page 15, lines 12 – 15.

c. The distribution supply line systems currently depend on Line 1600 for a steady supply of high pressure natural gas to support the current and anticipated demands downstream. Each of these distribution supply systems have been designed, sized, and planned based on forecasted and anticipated system growth in the areas they serve at the time of installation. These lines currently operate with a MAOP of 400 psig. As discussed in SDGE-8-R Updated

Prepared Direct Testimony of Norm G. Kohls, Attachment A, Sub-Attachment XI: Line 1600 De-Rating Impact Analysis Stage 1, the most critical distribution supply line systems require continued operation at an MAOP of 400 psig to meet current and forecasted downstream demand.

d. Pressure would not be increased from 320 psig to 400 psig, instead the three new regulator stations supplying gas to the critical 400 psig distribution supply line systems would be connected to the proposed Line 3602, which would serve as the primary high pressure source, not the de-rated Line 1600. This configuration is further discussed in SDGE-8-R Updated Prepared Direct Testimony of Norm G. Kohls, Attachment A, Sub-Attachment XI: Line 1600 De-Rating Impact Analysis at pages 1-2.

e. Please refer to SDGE-8-R Updated Prepared Direct Testimony of Norm G. Kohls, Attachment A, Sub-Attachment XI: Line 1600 De-Rating Impact Analysis at Appendix A - De-rating Maps.

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QUESTION 8:

Please provide the average and peak throughput of Line 1600 in MMcf/d of the current transmission service and if Line 1600 is de-rated to distribution level service.

RESPONSE 8:

Please refer to SDGE-12 Supplemental Testimony of SDG&E and SoCalGas at Attachment D for historical data for daily volumes delivered to Line 1600 at the Rainbow Metering Station, and to the response to Question 6 above.

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QUESTION 9:

Please indicate if a new 14" steel or plastic pipeline can be inserted into the current 16" Line 1600. If so, what would be the maximum throughput in MMCF/d of a new 14" pipeline and the MAOP and operational psig? (Please disregard the short 14" segment of Line 1600 when answering this question.)

RESPONSE 9:

Applicants, based on their expertise, experience and judgment, believe that this question's proposal to insert a 14" steel pipeline (note: plastic pipelines are not used by Applicants for high pressure service) into the existing 16" diameter Line 1600 pipeline is infeasible and may in fact not be possible from a technical implementation standpoint due to clearances and constructability, along with the long term issues with safely operating and maintaining a large pipeline in this configuration. Applicants doubt the practicality of this option and are unaware of any projects where a gas pipeline operator attempted to insert a large diameter steel pipeline into another large diameter steel pipeline, such as a 14" diameter pipe into a 16" diameter pipe for a length of 45 miles. Another consideration is protecting the inserted steel pipe from corrosion, which may be another technical problem that cannot be practically solved. Also, due to pressure limitations, even if it could be constructed, a 14" polyethylene pipe would not provide the necessary capacity and is not something used in the industry. In sum, the Applicants do not consider the suggested concept as a prudent, practical or feasible alternative and question the long-term safety and reliability of this concept, especially when compared to feasible alternatives, such as the Proposed Project.

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QUESTION 10:

Please provide the daily North-South flow of gas in MMCF/d from SCG's northern system to its southern system for 2016 and up to the current time in 2017.

RESPONSE 10:

Applicants object to this question as it calls for information beyond the scope of this proceeding, and as such, seeks information that is neither relevant nor reasonably calculated to lead to discovery of admissible information. Volumes transported from SoCalGas' Northern System into its Southern System do not improve the safety, reliability, or operating flexibility of the SDG&E gas transmission system, which begins at the Rainbow Metering Station. Subject to and without waiving this objection, Applicants respond as follows:

Please refer to the attached document for daily volumes transported on Line 6916 and through the L4000/4002 crossovers for the flow of gas from SoCalGas' Northern System to its Southern System.

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QUESTION 11:

Please provide the average and maximum North-South flow of gas in MMCF/d from SCG's northern system to its southern system if Line 1600 is de-rated to distribution level service and Line 3010 is operated as it is currently operated.

RESPONSE 11:

Applicants object to this question as it calls for information beyond the scope of this proceeding, and as such, seeks information that is neither relevant nor reasonably calculated to lead to discovery of admissible information. Volumes transported from SoCalGas' Northern System into its Southern System do not improve the safety, reliability, or operating flexibility of the SDG&E gas transmission system, which begins at the Rainbow Metering Station. Subject to and without waiving this objection, Applicants respond as follows:

De-rating Line 1600 will not affect SoCalGas' ability to flow gas from its Northern System to its Southern System.

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QUESTION 12:

Please provide the North-South flow of gas in MMCF/d from SCG's northern system to its southern system if the Aliso Canyon storage field is closed permanently during a 1-in-35 peak day event. (Please assume that a peak day event occurs over a four day period with day one's SCG's system average temperature at 42 degrees Fahrenheit, day two at the 1-in-35 41.2 degrees, day three at 43 degrees and day four at 45 degrees. (Please use the data shown on pages 92 and 93 of the 2016 California Gas Report in your response.)

RESPONSE 12:

Applicants object to this question as it is overly broad, vague and ambiguous, and calls for information beyond the scope of this proceeding, and as such, seeks information that is neither relevant nor reasonably calculated to lead to discovery of admissible information. Volumes transported from SoCalGas' Northern System into its Southern System do not improve the safety, reliability, or operating flexibility of the SDG&E gas transmission system, which begins at the Rainbow Metering Station. Subject to and without waiving this objection, Applicants respond as follows:

Applicants have not performed the calculation requested, and the information provided in this request and in the cited pages of the California Gas Report lacks sufficient detail to do so. The Aliso Canyon storage field does not directly supply SoCalGas' Southern System with gas, but rather supplies gas to the Los Angeles area. Notwithstanding, SoCalGas may at times divert some northern supplies destined for Los Angeles to the Southern System because the difference can be made up with supply from Aliso Canyon. Without Aliso Canyon, this ability is limited. The amount of northern supply that may be transported to SoCalGas' Southern System in the future will depend upon, but is not limited to, the location of demand on the SoCalGas and SDG&E system, the location of delivered supply, system pressures, and facility outages. Regardless, any such flow will not address Applicants' concerns with the safety, reliability, or operating flexibility of the SDG&E gas transmission system, which are addressed by the PSRP.

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QUESTION 13:

Please provide the storage withdrawal necessary each day from SCG's storage fields in the event indicated in Q.10 and the necessary storage inventory needed to sustain the storage withdrawal levels. (Please use the data shown on pages 92 and 93 of the 2016 California Gas Report in your response.)

RESPONSE 13:

Applicants object to this question as it is overly broad, vague and ambiguous, and calls for information beyond the scope of this proceeding, and as such, seeks information that is neither relevant nor reasonably calculated to lead to discovery of admissible information. Subject to and without waiving this objection, Applicants respond as follows:

Question 10 of this data request does not describe an event, but rather seeks historical data regarding the transportation of supply from the SoCalGas' Northern System to the Southern System. Should TURN have intended to refer to Question 12 of this data request instead, as may be indicated by its reference to the California Gas Report here, please refer to the response to Question 12 above.

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QUESTION 14:

Please provide the curtailment in MMCF/d separately for non-core Commercial and Industrial and Electric Generation customers in a four day peak day event as shown in Q.10. (Please use the data shown on pages 92 and 93 of the 2016 California Gas Report in your response.)

RESPONSE 14:

Applicants object to this question as it is overly broad, vague and ambiguous, poses an incomplete hypothetical, and calls for information beyond the scope of this proceeding, and as such, seeks information that is neither relevant nor reasonably calculated to lead to discovery of admissible information. Subject to and without waiving this objection, Applicants respond as follows:

Please refer to the response to Question 13 above.

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QUESTION 15:

Please provide the information requested in Q-10-12 if the Aliso Canyon storage facility in permanently closed.

RESPONSE 15:

Applicants object to this question as it is overly broad, vague and ambiguous, poses an incomplete hypothetical, and calls for information beyond the scope of this proceeding, and as such, seeks information that is neither relevant nor reasonably calculated to lead to discovery of admissible information. Subject to and without waiving this objection, Applicants respond as follows:

Please refer to the responses to Questions 10 through 12 above.

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QUESTION 16:

Would the closure of the Aliso Canyon storage field affect the peak day reliability of SDG&E's and SCG's core customers in the Rainbow Corridor?

RESPONSE 16:

Applicants object that this Question is vague and ambiguous, calls for speculation, and calls for information beyond the scope of this proceeding, and as such, seeks information that is neither relevant nor reasonably calculated to lead to discovery of admissible information. Subject to and without waiving this objection, Applicants respond as follows:

Customers on SoCalGas' Southern System, which includes those in the Rainbow Corridor and SDG&E, are not directly supported with supply from Aliso Canyon. However, as discussed in the response to Question 12 of this data request, northern system supplies may be diverted from the Los Angeles basin to support the Southern System and, if so, are replaced with supply withdrawn from Aliso Canyon. If supply from Aliso Canyon is unavailable, northern system supplies could not be diverted to the Southern System without putting the integrity of the Los Angeles basin at risk under certain circumstances. Whether closure of the Aliso Canyon storage field would affect peak day reliability of SDG&E's and SoCalGas' core customers in the Rainbow Corridor would depend upon many factors, including but not limited to demand in SDG&E's territory, SoCalGas' Southern System, and SoCalGas' Northern system, the location of such demand, interstate supplies into SoCalGas' Northern and Southern Systems, and whether all transmission system components were in service. The question posits a lack of supply of gas to the Southern System arising from loss of Aliso Canyon. Please note that other customers are curtailed before core customers, thus requiring a significant lack of interstate supply.

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QUESTION 17:

Would the closure of the Aliso Canyon storage field affect the peak day reliability of SDG&E's and SCG's core gas customers if Line 1600 is de-rated to distribution service and Line 3010 is operated as it is now operated?

RESPONSE 17:

Applicants object that this Question is vague and ambiguous, poses an incomplete hypothetical, calls for speculation, and calls for information beyond the scope of this proceeding, and as such, seeks information that is neither relevant nor reasonably calculated to lead to discovery of admissible information. Subject to and without waiving this objection, Applicants respond as follows:

Please refer to the responses to Question 11 and Question 16 above.

QUESTION 18:

Would the closure of the Aliso Canyon storage field affect the peak day reliability of SDG&E's and SCG's core gas and **core electric** customers if Line 1600 is de-rated to distribution service and Line 3010 is operated as it is now operated?

RESPONSE 18:

Applicants object that this Question is vague and ambiguous, poses an incomplete hypothetical, calls for speculation, and calls for information beyond the scope of this proceeding, and as such, seeks information that is neither relevant nor reasonably calculated to lead to discovery of admissible information. Subject to and without waiving this objection, Applicants respond as follows:

Please refer to the responses to Questions 11 and 16 above. In addition, electric generation is only one component that contributes to electric grid stability. Further, whether Aliso Canyon is operating or closed will not address Applicants' concerns with the safety, reliability, or operating flexibility of the SDG&E gas transmission system, which are addressed by the PSRP.

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QUESTION 19:

Please provide the total storage capacity in LNG gallons and re-gasified MMbtu of SDG&E's Borrego Springs LNG facility.

RESPONSE 19:

The total storage capacity for LNG at the Borrego Springs LNG facility is 13,633 gallons. The MMBtu value of this quantity varies with heating value of the LNG. Using the average value of the heating values from 2016 of 1.0785 Btu/Gal this would be 14,703 MMBtu.

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QUESTION 20:

Please provide the Borrego Springs LNG facility's maximum withdrawal capacity in Mcf/d and MMbtu/d.

RESPONSE 20:

The maximum withdrawal capacity of the facility is limited by the volume of LNG which the vaporizers can change back to a gaseous state. The vaporizers are limited to 238 Mcf/d. Using the average heating value of the gas from 2016 of 1078.5 this would equate to approximately 257 MMBtu/d.

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QUESTION 21:

Please provide the annual cost per gallon and cost per MMBtu of LNG bought for the Borrego Springs LNG facility from January 1, 2012, up until the current time from SDG&E's Chula Vista LNG plant or non-SDG&E LNG providers.

RESPONSE 21:

The table below provides the cost per gallon and cost per MMBtu of the LNG bought for the Borrego Spring LNG facility from January 1, 2012 up until the current time based upon the available data.

Year	Cost/gallon	Cost/MMBtu
2012	$1.33	$16.19
2013	$0.96	$11.31
2014	$1.07	$12.52
2015	$0.91	$10.57
2016	$0.91	$ 9.70

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QUESTION 22:

Please provide any bids SDG&E has received from outside LNG fuel providers to supply the Borrego Springs LNG facility with LNG fuel.

RESPONSE 22:

The attachments to this response contain confidential information provided pursuant to the Nondisclosure and Protection Agreement between TURN and SDG&E/SoCalGas.

A copy of the latest bid from the successful bidder is attached. A copy of the bid from the unsuccessful bidder is not available but the comparison between the bids is provided in the attached documents.

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QUESTION 23:

Please provide the annual throughput of the Borrego Springs LNG facility over the past 5 years, 2012 through 2016, in gallons and MMbtu.

RESPONSE 23:

The table below provides the annual throughput of the Borrego Springs LNG facility over the past 5 years, 2012 through 2016, in gallons and MMbtu.

Borrego Springs LNG Facility		
Annual Throughput		
Year	Gallons	MMBtu
2012	115142	9817
2013	127329	10824
2014	98583	8430
2015	93917	8031
2016	233329	21148

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QUESTION 24:

a. In reference to Mr. David Bisi's updated direct testimony, please indicate whether Mr. Bisi is assuming that the Aliso Canyon storage field withdrawal capacity will be available on a peak day event for reliability protection.

b. Please indicate if Aliso Canyon's storage withdrawal were not available how would Mr. Bisi's testimony change?

RESPONSE 24:

As discussed in the response to Question 16 above, Aliso Canyon does not directly support Southern System customers, including SDG&E. As long as sufficient supply is available on the Southern System, from whatever source, whether Aliso Canyon is operating or closed does not impact the Southern System. Regardless of whether Aliso Canyon is operating or closed, the SDG&E system will reap the safety, reliability, and operational benefits of the Proposed Project.

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QUESTION 25:

In Mr. Yari's updated direct testimony he states that "As described below, SDG&E's electric power import capability alone is not sufficient to serve all electric load for many hours during many days of the year." P. 5 lines 18-19.

a. Please indicate the percent of electric load that could not be served by electricity imports in MWs, KwHs and in MMCF/d gas-fired equivalent assuming a Combined Cycle power plant's heat rate in SDG&E's service territory.

b. Please indicate the curtailment of residential and small commercial electric customers and large commercial and industrial users if electricity demand could not be served with imports of electricity in MWs, KwHs and in MMCF/d gas-fired equivalent assuming a Combined Cycle power plant's heat rate in SDG&E's service territory.

RESPONSE 25:

Applicants object that this question is vague, ambiguous and poses an incomplete and inaccurate hypothetical. Subject to and without waiving this objection, Applicants respond as follows:

(a) Applicants object to using a Combined Cycle (CC) heat rate as it is an incorrect valuation and would underestimate the gas need. All of the local plants are not CC and a lot of the local capacity is from peak users. Furthermore, the CC would not be running at full load the whole time.

Please see SDGE-4-R Updated Direct Testimony of Ali Yari served on February 21, 2017, page 16, line 5 which states that approximately 2,086 MW of customer load would be unserved if gas supply were interrupted. That translates into 44.4% of the peak electric demand referenced in the testimony. To provide kWh and MMCF/d we require a timeframe, duration, and scenario to be clearly defined.

(b) Load shed during a peak day would leave the following number of customers without service:

2,086 MW shed = 90% Residential and 10% Commercial

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QUESTION 26:

On page 7 of Mr. Yari's direct testimony, Table 1, he shows the 13,000 MW ramp needed to meet the CAISO's "duck curve".

a. Please indicate "ramp need" in MMCF/d required to meet the increased MW load. Please indicate the Combined Cycle and Combustion Turbine heat rates and MMCF/d required by each to meet the "duck curve" load.

b. Please indicate whether the "ramp need" could be met by increased electricity imports during these events.

c. Please indicate the pack and draft available in MMcf/d during the "duck curve". (Please assume that the SDG&E gas transmission and distribution system is packed from 12 AM to 6 PM and drafted from 6 PM to 9 PM.)

RESPONSE 26:

The illustration in Table 1 is a CAISO developed tool to articulate the challenges it faces as a Balancing Authority. Please visit the following website for more information:

https://www.caiso.com/Documents/FlexibleResourcesHelpRenewables_FastFacts.pdf.

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QUESTION 27:

Please indicate whether SDG&E has evaluated options to increase electricity imports to meet the ”duck curve”, what the best options are and the cost associated with each.

RESPONSE 27:

The illustration in Table 1 is a CAISO developed tool to articulate the challenges it faces as a Balancing Authority. Please visit the following website for more information:

https://www.caiso.com/Documents/FlexibleResourcesHelpRenewables_FastFacts.pdf.

For information regarding potential new transmission lines to increase electricity imports, please refer to Applicants’ response to SCGC DR 7, Question 7.7, which is posted to SDG&E’s website at: http://www.sdge.com/regulatory-filing/15786/pipeline-safety-reliability-project

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QUESTION 28:

On page 9 of Mr. Yari's direct testimony, he states that "existing and New EG No Longer Have Back-up Fuel Sources". Please indicate if SDG&E has evaluated the cost of electricity storage or electric power plants' on site LNG, butane or above ground natural gas storage facilities to meet the "duck load" and what the cost of each would be for these very short-term events. Please provide the data in LNG gallons and MMBtu, butane gallons and MMbtu, and above ground storage in 1000 cubic feet and MMBtu needed to meet the "duck curve" requirements shown in Mr. Yari's Table 1.

RESPONSE 28:

The illustration in Table 1 is a CAISO developed tool to articulate the challenges it faces as a Balancing Authority. Please visit the following website for more information:

https://www.caiso.com/Documents/FlexibleResourcesHelpRenewables_FastFacts.pdf.

See also the CEA for a discussion of Alternative G – LNG Storage (Peak Shaver) Alternative.

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QUESTION 29:

Table 3 in Mr. Yari's direct testimony on page 17 shows SDG&E's Peak Load Duration curve. Please indicate the number of days SDG&E's peak load exceeds 4,000 MWs and indicate how much of that load can be met with on system electricity battery storage, demand response, pumped storage withdrawal, and non-gas-fired electric generation capacity.

RESPONSE 29:

Year	Number of Days the Peak Load exceeded 4000 MW
2014	17
2015	21
2016	9

Type	Capacity [MW]
Electric Battery Storage	37 (up to 4 hours), assuming batteries are fully charged and accessible
Pumped Storage Withdrawal	40 (depends on water availability)
Non-gas-fired Electric Generation	30 (NQC value for Kumeyaay wind and Borrego solar) assuming available wind and sun
Total load that can be met under favorable conditions by non-gas fired generation	107

Demand Response	14-80 (available depending on time of the year)

*As stated in the testimony, SDG&E's DR forecast filed April 2016 shows that SDG&E has 14 MW available in April and 80 MW available in September.

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QUESTION 30:

Please provide SDG&E's planned additions in electricity battery storage, demand response, planned pumped storage additions and non-gas-fired electric generation over the next 20 years and the cost of each in MWs of capacity and per KwH.

RESPONSE 30:

Applicants object that this question calls for speculation. Without waiving and subject to their objection, Applicants respond as follows:

SDG&E currently has plans for 37.5 MW of battery energy storage. Beyond such plans, it would be highly speculative for SDG&E to provide estimates of these resources and costs over the next 20 years. The regulatory requirements that influence SDG&E's procurement decisions are driven by regulatory agencies, such as the CPUC, the California Energy Commission and CAISO among others. Further, any such additions would require approval of various regulatory agencies.

Also, Demand Response (DR) is hard to predict as far as long term growth due to the transition of DR into two products 1) Supply Side DR that is bid into the CAISO and 2) Demand Side or Load Modifying DR. Any reference to DR beyond the 5-year DR plan submitted to the commission for approval would be speculation.

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QUESTION 31:

Mr. Paul Borkovich states on page 3 lines 3-7 that BTS customers have generally not scheduled gas at the Otay Mesa receipt point because the costs to customers is higher than deliveries at Topock or Blythe.

a. Please provide the increased cost per MMbtu of deliveries at Topock and Blythe compared to Otay Mesa over the past five years, 2012-2016 on a daily basis.

b. Please provide the daily receipts at Otay Mesa from Jan 1, 2012 until now in MMcf/d.

c. Please provide the daily volume in MMBtu and price of gas received at Otay Mesa from the Energia Costa Azul LNG facility, and Ehrenburg.

RESPONSE 31:

a. Please see the attached table for the Energy Hub's daily incremental cost to transport gas from the EPNG South Mainline to Otay Mesa from 2012-2016. Daily average border price indices for each day are also included to show that being able to purchase gas and deliver it to system receipt points other than Otay Mesa results in significant savings to customers. Direct purchases at Otay Mesa from 2011 are also included for your information.

b. Scheduled receipt point quantities are expressed in decatherms rather than MMcfd or MMDth. Please see attached table for the daily receipts by shipper at Otay Mesa in decatherms.

c. Please see the response to Question 31(a) above for receipts with delivered cost information for gas received at Otay Mesa.

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QUESTION 32:

Please provide any communication SDG&E/SCG has had with Sempra LNG to secure gas for peak day protection from Costa Azul or with Shell Mexico Natural gas or Gasprom Trading Mexico. If not, why not?

RESPONSE 32:

Applicants have not had any communication with Energía Costa Azul (ECA) storage customers to secure gas for peak day protection under the terms of SoCalGas Rule 41. Non-affiliated ECA storage customers are not currently in the position to sell gas to the Operational Hub for system reliability at Otay Mesa because they have not stored any LNG at the facility since it went into service. Direct communication with affiliated ECA storage customers for the purchase of supply for system reliability is not authorized per Rule 41.

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QUESTION 33:

Please provide updated LNG and SoCalGas city gate prices for February 27, 2017 as shown in Mr. Borkovich's Direct testimony pg. 9 paragraph iv.

RESPONSE 33:

On February 27, 2017, the InterContinental Exchange (ICE) SoCalGas Citygate price was $2.8432 per Dth.

Japan's Ministry of Economy, Trade and Industry reported that the average price of spot-LNG imported into Japan that was contracted in January 2017 was $8.4 per MMBtu.

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QUESTION 34:

Mr. Borkovich states that "The Cost Differential between Otay Mesa and Other Utility Receipt Points Makes it Unattractive to Customers." Pg. 9, para.v.

a. Please confirm that the SCG System Operator has the authority to purchase and deliver gas at Otay Mesa during peak day or pipeline interruption events.

b. Please confirm if, in fact, the System Operator has done so in the past. Please provide the dates and volumes that the System Operator purchased and delivered gas at Otay Mesa to forestall curtailment of service.

RESPONSE 34:

a. Yes.

b. Yes. See table below for System Reliability purchases delivered at Otay Mesa.

Gas Flow Date	Net Scheduled Quantity (Dth)
2/2/2011	80,000
2/2/2011	100,000
2/3/2011	100,000
2/4/2011	15,000
1/15/2013	49,166
1/15/2013	49,167
1/16/2013	49,166
12/10/2013	47,224
12/11/2013	24,597
12/11/2013	7,870
12/11/2013	16,725
6/21/2016	14,305
6/22/2016	14,305