SAN DIEGO GAS & ELECTRIC COMPANY
SOUTHERN CALIFORNIA GAS COMPANY

PIPELINE SAFETY & RELIABILITY PROJECT (PSRP)

(A.15-09-013)

(7th DATA REQUEST FROM THE SIERRA CLUB)

Date Requested: March 17, 2017
Date Responded: March 31, 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 Sierra Club from Sierra Club's own files, from documents or information in Sierra Club's possession, or from documents or information that SDG&E and SoCalGas previously released to the public or produced to Sierra Club. 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 Sierra Club 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 Sierra Club'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:

The following questions refer to page 16 of the "Updated Prepared Direct Testimony of S. Ali Yari on Behalf of San Diego Gas and Electric Company and Southern California Gas Company," Exhibit No: SDGE-4-R, Table 2 "SDG&E Import Limit without Gas Fired In-Basin Generation"

a. Does the "Import Limit" apply to the sum of simultaneous flows on all three existing points on the San Diego import transmission (SDIT) –South of SONGS transmission path, the SWPL and Sunrise Powerlink systems via the IV 500/230 kv substation, and the Otay Mesa-Tijuana 230 kv transmission line, in any combination? If not, what does it refer to?
b. Confirm that the electric transmission system is in an N-0 state in the scenario studies in Table 2.
c. Define "Generation connected to IV." Does this refer to the nameplate rating or NQC of generation connected directly to the IV Substation or upstream of IV from SWPL, or to the nameplate rating or NQC of such generation actually synchronized to the grid at any point in time, or to flows from IV to the SDIT?
d. Where is the "S-Line" located and describe the system conditions (including generation dispatch) that cause the indicated thermal overload? Is this overload in an N-0 state? If not, describe the N-1 condition.
e. Describe at least the locations if not the quantities of dynamic voltage support that could be installed or activated from existing resources that would be effective in resolving the "voltage instability" region of the nomogram.
f. Is this nomogram shown in Table 2 incorporated into the CAISO real time and/or day ahead scheduling algorithm? If so, please supply the Market Notice or other documentation that describes the nomogram at time of insertion.
g. On what date was this nomogram last updated and what system addition caused the revision?
h. Please provide documentation of the transmission and generation systems modeled in the studies used to construct this nomogram.
i. Is the transmission system modeled in these studies the existing system and all future transmission projects that received ISO approval in the 2016-2017 or earlier ISO transmission plans? If not, which such elements were excluded?
j. Were the additional "Track 1 and 4 Authorized Conventional Gas Fired" resources totaling 808 MW and the "CPUC Authorized Preferred Resources and Energy Storage " totaling 52.8 MW in 2018; 174.2 MW in 2021 and 224.6 MW in 2026 (NQC values) [see e.g., CAISO 2016-2017 Transmission Plan March 8, 2017, p.142] considered in these studies?
k. If commercially available, factory supplied and warrantied clutches were to be installed on the five gas turbines at the planned Carlsbad facility to allow operation of these units

as 5-100MVAR synchronous condensers without combustion of natural gas, what equivalent "in basin gas fired generation" in Table 2 would be displaced or what would the new "SDG&E Import Limit" be without in basin gas fired generation?

l. If commercially available plant level voltage controls were installed on the 30 MW NQC Kumeyaay wind farm and/or the "solar generation at Borrego" and/or the 37 MW of "battery storage" mentioned as effective "in-basin generation" in footnote 26 on p.16 (making them capable of supplying or absorbing VARs irrespective of the real power output), would this additional dynamic voltage support increase the "SDG&E Import Limit without Gas Fired In-basin Generation"? What controls were modeled on these generators/batteries in these studies?

RESPONSE 1:

a. The SDG&E import is defined as the sum of the flows on the South of San Onofre 230kV lines (5 lines), TL50001 (500kV line from East County to Miguel), TL50003 (500kV line from Ocotillo to Suncrest), and TL23040 (230kV line from Otay Mesa to Tijuana).

b. The electric transmission system is in an N-0 state initially in the scenario studies in Table 2 of SDGE-4-R. The electric transmission system is a pre-contingency in an N-0 state in the scenario study in Table 2. Application of contingencies to the pre-contingency N-0 state results in the limitations (voltage stability and thermal) depicted in Table 2 of SDGE-4-R. Pre-contingency operation should be such that post contingency thermal or stability performance violations do not occur.

c. The phrase "Generation connected to IV" is used to characterize generation in the Imperial Valley area. This includes the generation connected to the IV substation, East County and Ocotillo substations. In Table 2 of SDGE-4-R, the generation value refers to the generation that could be online at IV, East County and Ocotillo.

d. The S-Line is an Imperial Irrigation District (IID) 230kV line located in the Imperial Valley area. The line is connected between the Imperial Valley 230kV substation and the IID El Centro 230kV substation.

   The outage of TL50002 (500kV line from North Gila to Imperial Valley) may result in an S-Line thermal overload. This is not an N-0 state overload. However, the transmission system in an N-0 state must be operated in a manner such that the potential outage of

TL50002 does not result in thermal overload of the S-Line. *See*, *e.g.*, CAISO Procedure No. 3100, 3100A.

e. Adding only dynamic voltage support is not a feasible solution to voltage instability.

f. The nomogram depicted in Table 2 of SDGE-4-R will apply in a scenario where there is no internal gas-fired generation. The nomograms CAISO has currently modeled in the Market correspond to current system configuration and current resource availability.

g. There has been no change to the nomogram.

h. SDG&E used a Western Electricity Coordinating Council (WECC) power flow base case that models the interconnected Western transmission system and generation resources, including SDG&E's transmission system and generation resources.

i. The studies include California Independent System Operator (CAISO) approved projects that will have an impact on the nomogram. Projects not approved or currently in-service were excluded from the studies.

j. No.

k. The feasibility of adding clutches to the units has not been investigated and studies have not been performed to evaluate such scenario. The additional reactive power resources will improve the voltage stability limit; however, the additional reactive resources will not increase the thermal limit.

l. In the case of Kumeyaay and Borrego the effect is expected to be minimal. These resources are electrically distant from the area where the instability is observed.

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QUESTION 2:

Response to Sierra Club Data Request 6, Question 1(c) estimates 39 months "between final CPUC environmental and regulatory approval" and when proposed Line 3602 is placed in service and identifies the assumptions underlying that estimate.

a. Does "final" refer to final non-appealable approval? In other words, in the event CPUC environmental, regulatory and/or NEPA approval were appealed to state or federal court would the estimated 39 months be triggered upon resolution of those appeals or would Sempra Utilities commence construction activities with an appeal pending?

RESPONSE 2:

SDG&E and SoCalGas (Applicants) object to this question on the grounds that it is vague, ambiguous and calls for speculation. Subject to and without waiving their objections, Applicants respond as follows:

The 39-month estimate assumes that there would not be any significant delays associated with legal actions such as an appeal. Applicants are unable to respond as to whether or not they would commence construction with an appeal pending as such a determination would be made at that time based upon consideration of the situation that then exists.

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QUESTION 3:

Response to Sierra Club Data Request 6, Question 2 states that proposed Line 3602 "would create incremental revenue requirements recoverable through *at least* 2063."

a. Please identify the circumstances under which revenue recovery would continue beyond 2063?

RESPONSE 3:

The Proposed Project has a book life that extends two years beyond the range of the model used to calculate the forecasted revenue requirement. If the project is implemented and in service given the timing of the forecast, theoretically revenue would be required for an additional two to three years to capture the remaining book life of the asset. As the time period in question is fifty years in the future, after which the majority of the Proposed Project will have already been depreciated and recovered, the resulting impact is very small; approximately 0.1% of the net present value (NPV) of total revenue requirement requested. Any delays to implementing the Proposed Project could theoretically put revenue recovery past 2063.

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QUESTION 4:

Response to Sierra Club Data Request 6, Question 3(c) states that the Testimony of S. Ali Yari did not assume AAEE because "it was understood the model for the peak forecast with AAEE was to be modified." The Response to Question 4(a) states that the Testimony of S. Ali Yari relied on an SDG&E peak forecast "with no AAEE considered since AAEE can be uncertain since forecast rely on changes in laws, regulations and policies." These responses appear to be inconsistent with one another. Please explain whether the use of a demand forecast with no AAEE in the Testimony of S. Ali Yari, which is the basis for assertions in this testimony that peak demand is increasing, is because "the model for the peak forecast with AAEE was to be modified" or because "AAEE can be uncertain" and therefore no AAEE should be assumed. If the latter, please explain how this position is consistent with SB 350's mandate for a doubling of efficiency by 2030.

RESPONSE 4:

Please note that subsequent to Applicants' service of SDGE-4-R Updated Prepared Direct Testimony of S. Ali Yari, the California Energy Commission (CEC) updated its forecast for SDG&E's service territory on February 27, 2017.

The basis for the assertion that AAEE can be uncertain is due to the difficulty of forecasting load and AAEE at specific locations and estimating their daily load-shape impacts.

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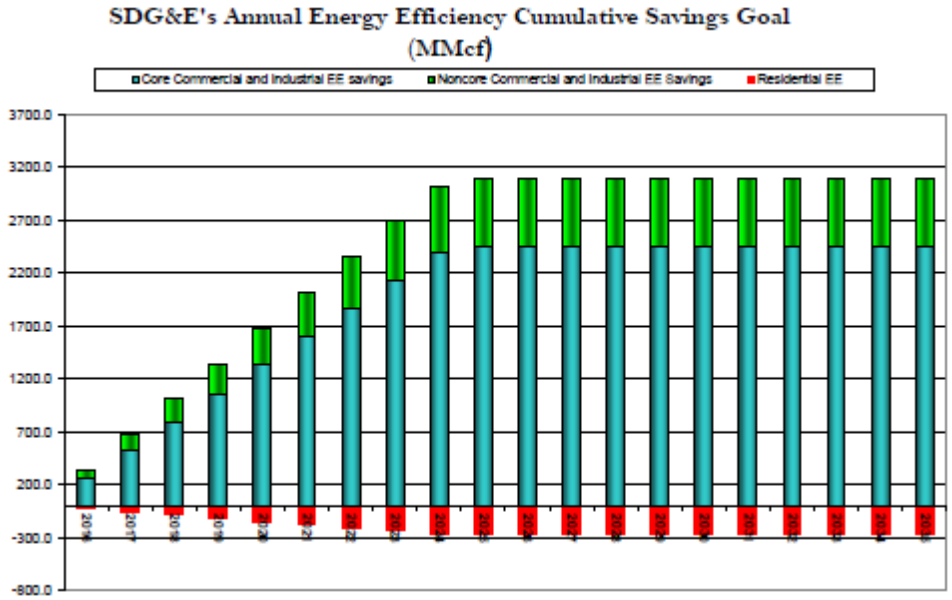
QUESTION 5:

Response to Sierra Club Data Request 9 states that "The 2016 CGR assumes that energy efficiency programs will continue to be funded after the year 2024. Accordingly, the established energy efficiency goals for the year 2024 are incorporated into the forecasts for the years 2025-2035." However, the graph on page 118 of the 2016 CGR, excerpted below does not appear to show any increase energy efficiency savings from 2025 onward. Given the apparent lack of additional efficiency savings, please answer the following:

a. What specific amount of annual program funding is assumed from 2025 to 2035?
b. What amount of additional energy savings does this funding achieve?
c. Why this continued funding does not appear to correlate to similar increases in efficiency savings as indicated for years 2016-2024.



RESPONSE 5:

Applicants assume that the question refers to Sierra Club Data Request 6. The below responses are provided under this assumption.

a. The 2016 CGR does not assume a specific amount of annual program funding from 2025 to 2035. Rather, it assumes that the established energy efficiency goals for the year 2024 will continue in subsequent years.

b. Please see the response to Question 5(a) above.

c. The graph on page 118 of the 2016 CGR was based on earlier forecasts of energy efficiency savings. Subsequent to the preparation of these forecasts, revised energy efficiency forecasts were developed. These revised energy efficiency forecasts were then used in preparing the final 2016 CGR forecasts. Inadvertently, the graph on page 118 of the 2016 CGR was not updated. The attached data and graph correspond to the revised energy efficiency forecasts. This information supersedes the information contained in the graph on page 118 of the 2016 CGR.

   The revised graph in the attachment shows increases in efficiency savings through year 2033 that are similar to those in the period 2016-2024. The reason why these increases cease is explained below.

   Regarding energy efficiency savings, page 118 of the 2016 CGR states:

   > Savings reported are for measures installed under SDG&E's gas and electric Energy Efficiency programs. Credit is only taken for measures that are installed as a result of SDG&E's Energy Efficiency programs, and only for the measure lives of the measures installed. Measures with useful lives less than the forecast planning period fall out of the forecast when their expected life is reached.

   For a period of time, as prior program year measures fall out of the forecast each year, they are replaced with new measures that have higher energy efficiency savings goals. This results in increased energy efficiency cumulative savings goals over the period. Because the established energy efficiency savings goals for 2024 are assumed to continue into the future at the same 2024 level, new measures are expected to have the same energy efficiency savings goals as the expiring measures beginning at some point. This occurs in the year 2033, as indicated by the leveling off of the energy efficiency cumulative savings goals in the attached graph beginning at the year 2033.

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QUESTION 6:

Page 8 of the Updated Prepared Direct Testimony of David M. Bisi states that "The chance of losing all compression at Moreno is relatively small, although such a situation nearly did occur at least once due to a malfunction in the Energy Shut Down system at the station. Frequently, however, individual engines at the station unexpectedly fail or delivered pressures from SoCalGas to Moreno Compressor Station drop below that required for the compressors to operate." Please answer the following:

a. In what year did the Moreno compressor station begin operations?
b. How many engines does the Moreno compressor station consist of?
c. Please list all known instances where the Moreno Compressor Station lost all compression and the duration of that loss.
d. Please explain the extent to which loss of an individual engine impacts Moreno's compression capability.
e. Please explain the extent to which loss of an individual engine can be compensated for though increased usage of other engines.
f. Please explain how Proposed Line 3602 would improve gas delivery where "delivered pressures from SoCalGas to Moreno Compressor Station drop below that required for the compressors to operate."
g. Please identify the cause(s) of delivered pressures from SoCalGas to Moreno Compressor Station dropping below that required for the compressor to operate.

RESPONSE 6:

a. 1955.

b. 10

c. Below is a list of all known instances when Moreno experienced an unplanned loss of all compression between the years 2006 and 2015.
    i. 03/06/2006 duration of outage 1.0 hrs.
    ii. 07/01/2006 duration of outage 1.5 hrs.
    iii. 11/30/2006 duration of outage 1.5 hrs.
    iv. 10/24/2007 duration of outage 1.45 hrs.

v. 08/18/2008 duration of outage 1.0 hrs.
vi. 08/19/2009 duration of outage 50 min.
vii. 08/24/2009 duration of outage 1.0 hrs.
viii. 01/25/2010 duration of outage 1.2 hrs.
ix. 02/01/2010 duration of outage 50 mins
x. 02/03/2011 duration of outage 2.1 hrs.
xi. 07/06/2011 duration of outage 1.1 hrs.
xii. 11/10/2011 duration of outage 1.3 hrs.
xiii. 11/11/2011 duration of outage 2.3 hrs.
xiv. 12/08/2011 duration of outage 1 hr.
xv. 08/28/2012 duration of outage 1 hr.
xvi. 08/21/2013 duration of outage 1.1 hrs.
xvii. 02/28/2014 duration of outage 7 hrs.
xviii. 04/14/2014 duration of outage 1 hr.
xix. 05/26/2015 duration of outage 1.1 hrs.

d. The impact of a loss of an individual engine depends upon several factors, including but not limited to: current demand and flow rate, available suction pressure and required discharge pressure, and which unit is impacted.

e. Such a circumstance would depend upon the flow rate required through the station, the intake pressure available to the station, and the discharge pressure required to maintain system integrity. At times all units are required to meet system requirements, and in this case, there will be no excess compression capacity.

f. Construction of the proposed 36-inch pipeline will result in increased capacity and improved flow characteristics of the transmission system lessening the need to run the Moreno Compressor Station.

g. As the Applicants' responded to ORA DR 10, Question 4 in this proceeding: "Several factors can cause low delivery pressure to the Moreno Compressor Station, including but not limited to: low southern system receipts, high southern system demand, high Los Angeles basin demand, Blythe Compressor Station outages, and southern system pipeline outages."