

Application No: A.17-10-002
Exhibit No.: _____
Witness: Jerry Stewart

Application of Southern California Gas Company
(U 904 G) and San Diego Gas & Electric Company
(U 902 G) Regarding Feasibility of Incorporating
Advanced Meter Data Into the Core Balancing
Process.

A.17-10-002
(Filed October 2, 2017)

REBUTTAL TESTIMONY OF
JERRY STEWART
ON BEHALF OF
SOUTHERN CALIFORNIA GAS COMPANY AND
SAN DIEGO GAS & ELECTRIC COMPANY

BEFORE THE PUBLIC UTILITIES COMMISSION
OF THE STATE OF CALIFORNIA

August 10, 2018

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1 **REBUTTAL TESTIMONY**
2 **OF JERRY STEWART**

3 **I. PURPOSE**

4 The purpose of my rebuttal testimony on behalf of San Diego Gas & Electric Company
5 (SDG&E) is to provide further clarification and factual corrections to the intervenor testimony
6 provided by Catherine E. Yap on behalf of Southern California Generation Coalition and
7 Indicated Shippers (SCGC/IS), Robert C. Grimm on behalf of Southern California Edison
8 Company (SCE), and Greg Lander on behalf of Environmental Defense Fund (EDF). My
9 rebuttal testimony explains why the proposals submitted by the intervenors related to SDG&E
10 Advanced Meter Infrastructure (AMI) technology are not appropriate for SDG&E's AMI system,
11 and discusses a recommended approach for a solution.

12 **II. CLARIFICATIONS AND FACTUAL CORRECTIONS TO INTERVENOR**
13 **TESTIMONY**

14 The follow sections address clarifications and factual corrections in the testimonies of
15 SCGC/IS, SCE, and EDF. An overarching concern I have with the intervenor testimony is that
16 they generally do not address the technical differences between SDG&E's AMI system and
17 SoCalGas' AMI system. As described in Mr. Mercer's and my direct testimony in this
18 proceeding, it is indisputable that the SDG&E AMI system differs greatly from SoCalGas'
19 system. Consideration of the intervenor testimony and proposals without a comprehensive
20 understanding of SDG&E's AMI system and its relationship to SoCalGas' AMI system would
21 rely on an incomplete and potentially inaccurate picture of how these systems actually work.
22 Understanding these differences are important for determining whether the intervenor proposals
23 are feasible and what the associated system impact and costs would be.

1 **A. Random Sampling Techniques Proposed by SCGC/IS Are Not Possible at**
2 **SDG&E**

3 SCGC/IS recommends that SoCalGas and SDG&E “Incorporate the Use of Estimated
4 Usage Based on Random Samples of Same Day Core Usage Produced by the AMI System
5 Throughout the Gas Day.”¹ SCGC/IS acknowledges, however, that for the SDG&E AMI
6 system, “Gas reads take place at 7:00 a.m. and 10:00 p.m., and the gas read data is transmitted to
7 the MDMS system sometime between midnight and 6:00 a.m.”² Therefore, SCGC/IS appears to
8 understand that its proposed random sampling technique would not be possible for the SDG&E
9 portion of the core procurement groups load. To the extent SCGC/IS contends otherwise, such a
10 proposal would not be possible for the SDG&E portion of the core procurement groups loads, as
11 explained in my direct testimony.

12 **B. SCE Mischaracterizes SDG&E’s AMI System As Providing Hourly Data**

13 SCE contests that “existing AMI infrastructure provides both hourly and daily data.”³
14 This statement is not accurate. SCE cites to lines 6-7 of David Mercer’s direct testimony in
15 support of this statement, but fails to include the entirety of the sentence, which is a substantive
16 contextual omission. The entire sentence reads: “The purpose of my prepared direct testimony
17 on behalf of Southern California Gas Company (“SoCalGas”) is to present an overview of
18 SoCalGas’ Advanced Meter Infrastructure (“AMI”) technology, specifically the current timing
19 and availability of AMI interval hourly gas usage data for core customers.”⁴

20 Similarly, in my direct testimony, I specifically stated the following:

21 Unlike the SoCalGas Advanced Meter system described in the direct
22 testimony of Mr. Mercer, the SDG&E gas modules **are not recording**

¹ Direct Testimony of Catherine E. Yap at 46.

² *Id.* at 41.

³ Exh. SCE-01 (Intervenor Testimony of Robert C. Grimm) at 6.

⁴ Direct Testimony of David Mercer at 1 (emphasis added).

1 **hourly metering data.** Instead, the gas modules take a self-read at their
2 programmed “Daily Freeze Time” (“DFT”) at 15:00 Coordinated
3 Universal Time (“UTC”, or 7 AM PST) and a second read taken just
4 before the gas module transmits its payload to its host electric meter at
5 06:00 UTC (i.e., 10 PM PST).⁵

6 Accordingly, SCE mischaracterizes SDG&E’s AMI system as providing hourly data. SCE takes
7 this inaccurate premise and characterization of SoCalGas’ AMI system and extrapolates that into
8 its claims relating to the “SCG/SDG&E” system. The technical distinction between the two
9 systems is material. What could technically be possible on the SoCalGas AMI system may not
10 be possible on the SDG&E AMI system. Viewing these systems as equivalent is not correct and
11 should not be the premise for any proposed changes to SDG&E’s AMI system.

12 SCE’s testimony carries forth this inaccurate presumption in its contention that “GAD
13 now has access to the same or similar AMI and/or operational data as noncore customers, who
14 currently must manage tighter balancing requirements.”⁶ To the extent SCE’s assertion
15 regarding “same or similar” data as noncore customers was made based on a belief that
16 SDG&E’s AMI infrastructure provided hourly data, it is not accurate.

17 SCE recommends that “(o)ne way to operationalize balancing to AMI and estimated
18 actuals is for the Commission to adopt a procedure in which SCG’s Gas System Operator
19 authorizes a one-way data transfer from the Gas System Operator to the GAD. Specifically, the
20 Gas System Operator would “push” estimated actual usage data to the GAD periodically
21 throughout the day.” Here again, SCE does not consider the operational and technical limitations
22 of SDG&E’s AMI system. In my direct testimony, I explain that “the electric meter sends a
23 combined electric and gas data payload to the Meter Data Management System (“MDMS”)
24 sometime between midnight and 6 AM PST.” Due to gas reads only being transmitted to a host

⁵ Direct Testimony of Jerry Stewart at 2 (emphasis added).

⁶ Exh. SCE-01 (Intervenor Testimony of Robert C. Grimm) at 7.

1 electric meter once a day, updated gas reads are not available to SDG&E back office systems
2 until completion of the next midnight interrogation cycle.

3 **C. SDG&E’s AMI System is Not Capable of Performing EDF’s Proposed On-**
4 **Command Query**

5 EDF’s intervenor testimony likewise fails to acknowledge or address any differences
6 between SoCalGas’ and SDG&E’s AMI systems.⁷ For the same reasons described above in
7 response to SCE’s intervenor testimony, to the extent EDF’s proposals require hourly data or
8 availability of data throughout the day, those proposals are simply not applicable to the SDG&E
9 portion of the core procurement groups loads. For example, EDF contends that it has “developed
10 an estimate for the cost of assembling the data queries that would provide access to historic
11 *hourly* and daily consumption crossed with temperature, hour of day, day of week, rate schedule,
12 etc. from which the UGPD and CTAs can construct forecasts for next day consumption
13 (aggregated and average per customer) by their respective aggregated customers.”⁸ Assuming
14 this estimate was based on its understanding of SoCalGas’ AMI system, EDF’s proposals
15 relating to estimates would not be possible under SDG&E’s current AMI system, which does not
16 provide hourly data or any data throughout the day. As described in my direct testimony, the
17 cost of obtaining Hour Lag Data at SDG&E would be at least \$200 million.⁹

18 EDF also argues it would be possible “to cause the MTUs to respond to an “on
19 command” transmission.”¹⁰ Again, to the extent EDF relies on SoCalGas’ testimony as the basis
20 for its understanding and proposals for SDG&E’s AMI system, EDF did not adequately consider
21 the capabilities of the SDG&E system in responding to an “on command” requirement.

⁷ See, e.g., Exh. EDF-02 (Intervenor Testimony of Greg Lander) at 7, lines 7-21.

⁸ *Id.* at 16 (emphasis added).

⁹ Direct Testimony of Jerry Stewart at 3.

¹⁰ Exh. EDF-02 (Intervenor Testimony of Greg Lander) at 22.

1 SDG&E’s system is not capable of performing an on-command query, and even assuming it was,
2 the meter only takes two daily freeze time readings, so any query other than at those two times,
3 would provide no additional value in support of EDF’s proposals.

4 **III. THE INTERVENORS’ PROPOSALS ARE NOT APPROPRIATE WHEN**
5 **VIEWED IN THE CONTEXT OF SDG&E’S AMI SYSTEM**

6 SCGC/IS contends that “[b]oth SoCalGas and SDG&E currently have the capability to
7 provide an accurate measure of retail core usage (and CTA customer usage) for the previous
8 Measurement Day by the end of the Gas Day through their existing AMI systems.”¹¹ SCGC/IS
9 proposes that with “minor changes” SDG&E’s AMI system can be capable of producing
10 accurate core gas customer usage each morning for the previous measurement day.¹²

11 Specifically, SCGC/IS states that “previous Measurement Day AMI metering data can be provided
12 to Gas Acquisition and the CTAs in a timely fashion with the addition of a certain amount of Data
13 Analytics work and some acceleration in the timing of the upload of AMI data from the MDMS to
14 the Data Warehouse.”¹³

15 SCGC/IS’ contention and proposal rely on several statements that are not appropriate
16 because they lack foundational understanding of SDG&E’s AMI system and its function and
17 processes. SCGC/IS summarizes SDG&E’s AMI system as follows:

18 As discussed previously, as of 6:00 a.m. each morning the MDMS system
19 contains the Measurement Day data for each of SDG&E’s approximately
20 900,000 AMI enabled gas meters. This information should be uploaded to
21 the Data Warehouse as soon as possible but no later than 6:30 a.m. Similarly,
22 the data that is available in the CIS system each morning will contain the
23 most current information about customers. This data should be uploaded to
24 the Data Warehouse as soon as possible but no later than 6:30 a.m. Since both
25 the MDMS and CIS databases contain the unique identifier for core meters
26 and a separate unique identifier for core MTUs, the databases can be queried
27 simultaneously in the Data Warehouse.
28

¹¹ Direct Testimony of Catherine E. Yap at 35.

¹² *Id.* at 41.

¹³ *Id.* at 36.

1 Nevertheless, the identity of the gas procurement agent for each core
2 customer must be known to SDG&E and exist in a database. This database
3 should be uploaded to SDG&E's Data Warehouse for use in analyzing AMI
4 data. However, the database containing the identity of the core procurement
5 agent must also contain one of the unique identifiers used in the CSI and
6 MDMS systems, either the core meter identifier or the core MTU identifier.¹⁴

7 As stated in my direct testimony, "(i)n response to an interrogation request sent by the
8 Collection Engine (CE), the electric meter sends a combined payload containing all electric and
9 gas data to the Meter Data Management System (MDMS) sometime between midnight and
10 6AM. The MDMS separates and imports the gas and electric payloads, interprets the unit of
11 measure, (i.e., CCF (100 cubic ft.) or MCF (1000 cubic ft.)), and assigns the reads to a valid
12 service point for billing."¹⁵ I further provided that "processed data is viewable through user
13 interfaces in the MDMS application and is transferred to the CIS/billing application at 5 AM
14 (80% of available data) and 9 AM (remaining 20% of available data)."¹⁶ Currently, the data
15 transferred to the MDMS between 4:30 a.m. and 6:00 a.m. goes through additional processing as
16 described above and is typically ready for export by 9:00 a.m. Thus, it would not be technically
17 feasible under the current AMI architecture to have this data be uploaded to the Data Warehouse
18 as soon as possible but no later than 6:30 a.m., as recommended in SCGC/IS' proposal.
19 Additionally, any cost estimates for what is characterized as "minor changes" is arbitrary,
20 speculative, and lacks technical requirements, which would need to be thoroughly analyzed to
21 determine an estimated cost for the capabilities SCGC/IS advocates for.

22 **IV. RECOMMENDED APPROACH FOR A SOLUTION**

23 If the Commission determines that it is necessary to modify the current forecast approach
24 for core balancing, the Commission should not look to the testimony of SCGC/IS, SCE, or EDF

¹⁴ Direct Testimony of Catherine E. Yap at 42.

¹⁵ Direct Testimony of Jerry Stewart at 2.

¹⁶ *Id.*

1 for guidance regarding the use of existing SDG&E systems or technical implementation details.

2 Based on my concerns highlighted in the sections above, and as can be seen from the AMI

3 proceeding and installation process, the AMI system is complex, interconnected, and symbiotic.

4 Changes to one particular function can impact a myriad of other procedures and functions and

5 impact system software and hardware as well. Moreover, even with this system complexity,

6 even intervenor testimony proposes vastly different approaches and methods to obtain arguably

7 the same technical goal. It is my opinion that rather than piecemealing several competing

8 approaches and methods that are not founded in a comprehensive understanding of the context of

9 the AMI system, that the Commission determine what the necessary requirements are for

10 incorporating AMI into the core balancing procedure and provide SoCalGas and SDG&E with

11 authority to conduct a study of options to implement the requirement. This will provide a

12 consistent, comprehensive approach to modifications of the AMI system to meet any new system

13 requirements.

14 SDG&E has not conducted any studies regarding the costs of enabling the core

15 procurement groups to balance to actuals. An accurate technical design and business plan and

16 cost analysis cannot be developed until functional requirements are determined.

17 This concludes my rebuttal testimony.