

Application No: A.14-06-021  
Exhibit No.: \_\_\_\_\_  
Witness: David M. Bisi

Application of Southern California Gas Company  
(U 904 G) and San Diego Gas & Electric Company  
(U 902 G) for Low Operational Flow Order and  
Emergency Flow Order Requirements

Application 14-06-021  
(Filed June 27, 2014)

**PREPARED REBUTTAL TESTIMONY OF**  
**DAVID M. BISI**  
**SOUTHERN CALIFORNIA GAS COMPANY AND**  
**SAN DIEGO GAS & ELECTRIC COMPANY**

**BEFORE THE PUBLIC UTILITIES COMMISSION  
OF THE STATE OF CALIFORNIA**

December 1, 2014

**TABLE OF CONTENTS**

**I. PURPOSE .....1**

**II. THE COMMISSION HAS ALREADY HEARD AND REJECTED SHELL’S PROPOSAL .....1**

**III. PRESSURE, LINEPACK, AND SUPPLIES ARE RELATED BUT DISTINCT .....2**

**IV. THE SOCALGAS AND SDG&E SYSTEM DIFFERS FROM THE PG&E SYSTEM IN DESIGN AND USE OF LINEPACK.....3**

**V. THE SOCALGAS AND SDG&E SYSTEM LACKS SUFFICIENT CAPACITY TO PROVIDE BALANCING SERVICES .....5**

**VI. THE USE OF STORAGE LEVEL AS A BALANCING TRIGGER IS NO MORE SUBJECTIVE THAN THE USE OF A LINEPACK TRIGGER .....7**

**VII. LINEPACK POSTINGS BY SOCALGAS AND SDG&E WOULD PROVIDE NO OPERATIONAL VALUE TO MARKET PARTICIPANTS .....8**

**VIII. SHELL’S ARGUMENTS REGARDING INDUSTRY PRACTICE ARE IRRELEVANT .....9**

**IX. CONCLUSION.....11**

**X. QUALIFICATIONS.....11**



1 We are not persuaded that section II.B.1.A. of the Settlement  
2 Agreement should be rejected because of Shell Energy’s argument  
3 that system line pack is not part of the formula that SoCalGas  
4 considers in determining when an OFO should be called. As  
5 summarized above, the testimony and concerns of Shell Energy  
6 were refuted by the testimony of SDG&E and SoCalGas. For  
7 example, Exhibit 55 described the difference between the PG&E  
8 system and the SDG&E and SoCalGas systems. PG&E has more  
9 miles of large transmission pipeline, while the SDG&E and  
10 SoCalGas systems have a lot more storage. Also, the pipeline  
11 designs are different, which allows PG&E to take advantage of its  
12 linepack capacity. In addition, SCGC which had originally  
13 advocated to include system line pack as part of the OFO formula,  
14 agreed with the other settlement parties to continue the use of the  
15 OFO protocol. The formula for the OFO protocol has been in use  
16 for a number of years, and the parties who agreed to its continued  
17 use in the Phase Two Settlement Agreement represent a cross  
18 section of customers with many different views and interests.  
19 Accordingly, there is sufficient testimony in the record to decide  
20 that the OFO protocol agreed to in section II.B.1.A. of the  
21 Settlement Agreement is reasonable and in the public interest and  
22 should be adopted.<sup>1</sup>

23 Nevertheless, SoCalGas and SDG&E will once again address the inaccuracies and  
24 deficiencies in Shell’s testimony, which will demonstrate once more that Shell’s proposal should  
25 be rejected by the Commission.

26 **III. PRESSURE, LINEPACK, AND SUPPLIES ARE RELATED BUT DISTINCT**

27 Linepack is the volume of gas supply stored within a pipeline, and is a function, among  
28 other things, of the pipeline’s operating pressure. The amount of linepack changes throughout  
29 the day as the pipeline’s operating pressure changes, and the operating pressure changes due to  
30 the level of customer demand (the “output”) relative to the level of supply (the “input”) at any  
31 given time. Because natural gas is a compressible medium, the output and the input do not have  
32 to equal each other. When there is more demand leaving a pipeline than supply entering it, the  
33 linepack is used or “drafted;” when there is more supply entering the pipeline than leaving, the

---

<sup>1</sup> D.09-11-006, mimeo., at p.24.

1 | linepack increases or “packs.” The amount of “pack” and “draft” available for use depends,  
2 | respectively, upon the pipeline’s Maximum Allowable Operating Pressures (MAOP) and  
3 | Minimum Operating Pressure (MinOP).

4 |         Throughout its testimony, Shell uses the terms “pressure” and “linepack” (or “line-pack”)  
5 | interchangeably. This interchangeable approach ignores a crucial distinction. Yes, operating  
6 | pressure is critical. But it is not correct to conclude that because system pressure is critical, it  
7 | can best be managed by monitoring linepack levels. As will be discussed in the next section, the  
8 | SoCalGas and SDG&E system does not lend itself to this type of measure for system integrity  
9 | due to its design. Furthermore, Shell neglects to consider the role that supply plays in  
10 | maintaining system pressures and linepack. As previously discussed, too little supply relative to  
11 | demand will draft the system and lower operating pressures. An OFO protocol based on a  
12 | comparison of available supply and demand, such as SoCalGas and SDG&E’s proposal, directly  
13 | measures the state of our system. Linepack levels do not.

14 | **IV. THE SOCALGAS AND SDG&E SYSTEM DIFFERS FROM THE PG&E**  
15 | **SYSTEM IN DESIGN AND USE OF LINEPACK**

16 |         SoCalGas and SDG&E have explained on several occasions that SoCalGas/SDG&E and  
17 | PG&E have built their gas transmission systems very differently. It is true that the transmission  
18 | systems of both SoCalGas/SDG&E and PG&E are similar in that they both use high-pressure,  
19 | large-diameter pipelines to transport gas away from the California border. However, they are  
20 | quite different in that PG&E has considerably more miles of large diameter, high pressure gas  
21 | transmission lines than SoCalGas and SDG&E, and PG&E has substantially less storage capacity  
22 | than SoCalGas and SDG&E. These large-diameter, high pressure pipelines afford the PG&E  
23 | system a tremendous amount of linepack -- well above what their system needs on a daily basis.

1 Therefore, it makes sense that PG&E would use linepack as a parameter in determining the need  
2 for tighter balancing.

3 In contrast, SoCalGas and SDG&E have a system with relatively low levels of pack and  
4 draft capability, but with a much larger amount of underground storage capacity – 137.1 BCF on  
5 the SoCalGas system versus approximately 40 BCF on the PG&E system.<sup>2</sup>

6 Finally, the PG&E’s gas transmission system resembles much more the traditional  
7 “point-to-point” transmission pipeline than that of SoCalGas and SDG&E. The SoCalGas and  
8 SDG&E gas transmission system is complex and highly interconnected with a network of  
9 pipelines linking the numerous receipt points on the fringes of the service territory with each  
10 other and with the demand centers. This results in pack and draft capacity that is situated close  
11 to our demand centers, which is helpful for meeting changes in customer demand but less so for  
12 absorbing changes in delivered supplies at the receipt points.

13 Shell downplays this fundamental difference by stating that “pipeline pressure is  
14 indifferent to the pipeline’s configuration.”<sup>3</sup> This incorrect assertion once again incorrectly uses  
15 “linepack” and “pressure” interchangeably. Moreover, because of the way that the SoCalGas  
16 and SDG&E system is designed, a part of the system can be at low pressure, and therefore at a  
17 low linepack level, while the rest of the system is operating normally. Not all parts of the  
18 SoCalGas and SDG&E system can support all others; for example, the SoCalGas southern

---

<sup>2</sup> Shell asserts that “PG&E now has more storage directly connected to its system than SoCalGas does.” (Prepared Testimony of Laird Dyer at p. 8.) This is not entirely accurate. Much of the northern California storage capacity, approximately 130 BCF, is under the control of independent storage providers. Use of that storage capacity is more similar to interstate pipeline supply than it is to SoCalGas’ or PG&E’s utility-owned storage fields. Third party storage must be nominated and dispatched per NAESB guidelines, and is not available on-demand to PG&E’s Gas Control department to maintain system integrity. Of the utility-owned storage, PG&E only has approximately 40 BCF of working inventory under its direct operational control, less than one third of the amount available to SoCalGas operations.

<sup>3</sup> Prepared Testimony of Laird Dyer at p. 8.

1 system is dependent upon supply delivered at the Blythe or Otay Mesa receipt points, and very  
2 little supply can be transported from other parts of the SoCalGas system to make up any shortfall  
3 in southern system supply.<sup>4</sup> This is clearly a case where pipeline pressure on the system is not  
4 indifferent to the system configuration, as Shell seems to believe. No amount of supply on  
5 SoCalGas' coastal system or in the Los Angeles basin can be used to hold up pressure or  
6 replenish linepack on the southern system because those supplies simply cannot get there.

7 PG&E's system design is fundamentally different, and for that reason, PG&E has  
8 developed a balancing system around the premise that system-wide linepack is an adequate  
9 representative for the status of all parts of its system. This is not the case for the SoCalGas and  
10 SDG&E system, and so it would be improper to force-fit PG&E's solution onto the SoCalGas  
11 and SDG&E system.

12 **V. THE SOCALGAS AND SDG&E SYSTEM LACKS SUFFICIENT PACK AND**  
13 **DRAFT CAPABILITY TO PROVIDE BALANCING SERVICES VIA LINEPACK**

14 SoCalGas and SDG&E simply do not have enough pack and draft capability to use that  
15 capability to provide balancing services and also provide continuous, uninterrupted service to our  
16 customers. SoCalGas and SDG&E use their pack and draft capacity on a daily basis to meet  
17 hourly changes in customer demand over the course of the operating day, and attempt to have  
18 near-zero pack and draft at the end of each day going into the next. In other words, it is not  
19 unusual for SoCalGas and SDG&E's linepack to swing from the minimum to maximum levels  
20 within a given operating day.

21 Shell would like SoCalGas' Gas Control Department to use the SoCalGas and SDG&E  
22 system pack and draft capacity as a measure for when tighter balancing requirements are  
23 necessary on a daily basis. There is simply no linepack capacity available on the SoCalGas and

---

<sup>4</sup> This is the focus of SoCalGas and SDG&E's proposed North-South Project, which is the subject of a pending application before the Commission (A. 13-12-013).

1 | SDG&E system for that function. It is well established that both weather and electric generation  
2 | demand are extremely difficult to forecast. A single Heating Degree Day difference in the  
3 | weather forecast results in a change of 110 MMcfd of core customer demand, and an  
4 | unexpectedly dispatched power plant can consume 200 MMcfd or more. While the Gas Control  
5 | Department would attempt to meet these demand changes by using underground storage  
6 | capacity, it needs the system-wide pack and draft capacity to manage hourly changes in both  
7 | planned and unplanned customer demand.

8 |         Furthermore, new power plants on the SoCalGas and SDG&E system are being installed  
9 | with “quick-start” capabilities, in which the plant demand can increase from completely off to  
10 | 100% utilization in as little as seven minutes. Since gas does not move quickly through a  
11 | pipeline, this rapid use of gas supply is met locally with linepack, which SoCalGas and SDG&E  
12 | attempt to replenish after-the-fact with pipeline or storage field supplies. This quick-start  
13 | capability, which is necessary to offset the sudden loss of renewable energy sources, presents a  
14 | new challenge to SoCalGas and SDG&E operations and system design.

15 |         Shell also claims that SoCalGas’ monthly balancing tolerance level in the 1990s  
16 | somehow proves that SoCalGas can utilize all of its pack and draft capacity for managing  
17 | customer supply imbalances.<sup>5</sup> On the contrary, this only highlights Shell’s failure to recognize  
18 | the value that linepack provides. As previously discussed, the use of linepack is an intraday  
19 | event – or, if being generous for the sake of argument, a daily event. Outside of the potential in  
20 | the winter balancing rules, or resulting from a curtailment of standby procurement services,  
21 | SoCalGas and SDG&E in the 1990s had (and still has) no mechanism to impose any type of  
22 | daily balancing requirement on its customers. It makes no sense to conceive of a service which  
23 | packs or drafts the system on a monthly basis, and in fact, SoCalGas’ monthly balancing service

---

<sup>5</sup> Prepared Testimony of Laird Dyer at p. 9.



1 has always been based exclusively on storage allocations. The fact that the storage allocation  
2 changed was a result of changing market value and behavior.

3 **VI. THE USE OF STORAGE LEVEL AS A BALANCING TRIGGER IS NO MORE**  
4 **SUBJECTIVE THAN THE USE OF A LINEPACK TRIGGER**

5 Shell faults the SoCalGas and SDG&E proposal for being “a formula that is based on  
6 subjective inputs.”<sup>6</sup> The SoCalGas and SDG&E formula proposed by Mr. Watson is very  
7 simple: “If forecast receipts – forecast sendout – forecast withdrawal scheduled from storage  
8 accounts (negative number) < -340 MMcfd, then a low OFO is called.”<sup>7</sup> Since scheduled  
9 receipts and storage withdrawal are unambiguous, Shell is presumably referring to the daily gas  
10 demand forecast performed by the Gas Control Department by its reference to “subjective  
11 inputs.” In developing the demand forecast for the OFO calculation, the Gas Control  
12 Department makes use of public weather data for estimating the level of core demand (wholesale  
13 and retail) and market information and historical data for noncore customer demand. The Gas  
14 Control Department also makes use of demand forecast data provided directly by the California  
15 Independent System Operator, which accounts for approximately 80% of the electric generation  
16 demand on the SoCalGas/SDG&E system.

17 In order for PG&E to provide a forward-looking estimate of its pack and draft usage, it  
18 also must compare a demand forecast against scheduled supplies. PG&E is subject to the same  
19 difficulties and limitations as SoCalGas and SDG&E in the development of the demand forecast.

20 Further, just as PG&E shows on its electronic bulletin board how much linepack is used  
21 in its calculation of an OFO (which is the difference between the demand forecast and the  
22 scheduled supplies), SoCalGas and SDG&E will show how much storage capacity is used  
23 (again, the difference between the demand forecast and the scheduled supplies). So while the

---

<sup>6</sup> Prepared Testimony of Laird Dyer at p. 5.

<sup>7</sup> Prepared Direct Testimony of Steve Watson at p. 5.

1 PG&E measure for calling an OFO differs from SoCalGas and SDG&E's because the gas  
2 transmission systems are designed differently (as previously explained), SoCalGas and  
3 SDG&E's methodology is at least as objective and transparent as PG&E's.

4 Finally, the SoCalGas and SDG&E proposal is actually less subjective than PG&E's  
5 methodology. PG&E can and has changed the maximum and minimum linepack triggers used in  
6 its OFO methodology based on safety or operational needs on its system, such as when PG&E  
7 removes a pipeline from service as part of its pipeline safety program. In contrast, SoCalGas and  
8 SDG&E's proposal would use as the trigger the allocated withdrawal capacity associated with  
9 the balancing service. As such, SoCalGas and SDG&E would not change this trigger as PG&E  
10 has done, since the allocated capacity would not change outside of the cost allocation  
11 proceedings or a similar regulatory proceeding.

## 12 **VII. LINEPACK POSTINGS BY SOCALGAS AND SDG&E WOULD PROVIDE NO** 13 **OPERATIONAL VALUE TO MARKET PARTICIPANTS**

14 Shell implores the Commission to "require SoCalGas/SDG&E to post, on Envoy, their  
15 forecast of the level of pipeline inventory" because that "will enable market participants to  
16 ascertain whether the pipeline may be close to its low (or high) pressure tolerance, and to  
17 anticipate whether an OFO will be issued."<sup>8</sup> This argument is not well founded. Because  
18 SoCalGas and SDG&E are not proposing to base an OFO protocol upon linepack levels for the  
19 reasons discussed herein, linepack information will not provide market participants with any  
20 indication whether an OFO is likely to be issued. Rather, such information may in fact lead the  
21 market to draw incorrect conclusions regarding the state of the system and the likelihood of an  
22 OFO. An instance when linepack is near its minimum level but customers are delivering levels  
23 of supply at least equal to their level of demand would not be indicative of an imminent OFO. In

---

<sup>8</sup> Prepared Testimony of Laird Dyer at p. 12.

1 this example, such linepack data may even drive the market to overdeliver supply, which in turn  
2 could lead to a high OFO resulting from a lack of injection capacity.

3 SoCalGas and SDG&E believe that any data that does not help customers and shippers  
4 manage their supplies to conform to our balancing requirements only serves to confuse and  
5 should be avoided.

6 **VIII. SHELL’S ARGUMENTS REGARDING INDUSTRY PRACTICE ARE**  
7 **IRRELEVANT**

8 Shell argues several times in its testimony that SoCalGas and SDG&E’s low OFO  
9 proposal is “inconsistent with industry practice.”<sup>9</sup> Shell apparently believes that because  
10 interstate pipelines presumably use linepack as a measure for declaring an OFO, SoCalGas and  
11 SDG&E should as well. I have already discussed above why the SoCalGas/SDG&E system and  
12 PG&E’s system can and should have different measures for an OFO condition based upon  
13 system design, particularly since interstate pipelines resemble PG&E’s gas transmission system  
14 much more so than SoCalGas and SDG&E’s. The Commission should also take note that  
15 interstate pipelines require daily or even more stringent balancing requirements, which help  
16 those pipeline companies manage their linepack levels.

17 Shell also mentions Northern Illinois Gas Company (Nicor), a system that Shell believes  
18 mirrors the SoCalGas and SDG&E system due to its large level of storage capacity. Nicor, Shell  
19 claims, “utilizes an OFO protocol that is based upon line-pack (pressure).”<sup>10</sup> Besides once again  
20 inaccurately interchanging “linepack” with “pressure,” Shell has misstated what Nicor’s OFO  
21 “protocol” is. Per Nicor’s Rider 16:

22 If the Company, in its sole discretion, determines that a situation is  
23 or may be developing that would impede the efficient operation of  
24 the system in which adequate pressures may not be maintained or

---

<sup>9</sup> Prepared Testimony of Laird Dyer at p. 3.

<sup>10</sup> Prepared Testimony of Laird Dyer at p. 8.

1 overall operational integrity could be threatened, or if such an  
2 event actually occurs, the Company is empowered to take such  
3 action it deems necessary to alleviate the situation so that it can  
4 provide safe and reliable service.

5  
6 To alleviate the situation, the Company shall first request Suppliers  
7 to voluntarily increase or decrease nominations to the system; shift  
8 nominated volumes from certain pipeline citygate stations to other  
9 pipeline citygate stations, or take other actions that would alleviate  
10 the situation.

11  
12 In the event such voluntary actions do not alleviate the situation,  
13 the Company will implement an Operation Flow Order (“OFO”).  
14 Suppliers will be notified of any OFO at least two hours before the  
15 Gas Industry Standards Board nomination deadline on the  
16 interstate pipelines that interconnect with the Company's facilities.  
17 Such OFO could change the Daily Delivery Range for Suppliers.  
18 In addition, the Company may limit the quantity of gas accepted at  
19 certain citygate stations in a manner consistent with the Priority of  
20 Supply provision as described in Terms and Conditions. It is the  
21 Supplier's responsibility to arrange for delivery to any non-  
22 constrained citygate station. If such actions are insufficient to  
23 alleviate the situation, or if there is not sufficient time to  
24 implement the actions, the Company reserves the right to  
25 unilaterally take such actions as may be necessary to maintain  
26 system pressure and preserve the overall integrity of the  
27 Company's system (or any portion thereof) in the most cost  
28 effective manner available. The Company is authorized to use all  
29 the resources of its system to such ends, through the integrated  
30 operation of storage and supply received into the system, even  
31 though gas affected by such actions is not owned by the Company.  
32 Any such costs incurred to maintain the system under an OFO will  
33 be recovered from sales customers and participating Suppliers,  
34 though the Company's Rider 6, Gas Supply Cost, with a credit  
35 applied for any Operational Flow Order Non-Performance  
36 charges.<sup>11</sup>

37  
38 This is the extent of Nicor’s “protocol” for OFOs. It is not based on any trigger -- be that  
39 linepack, system pressure, or supply -- nor does it seem that the process is particularly  
40 transparent. An OFO is simply declared when, in the “sole discretion” of Nicor’s operations  
41 department, the situation warrants it.

---

<sup>11</sup> Northern Illinois Gas Company Rider 16, Supplier Aggregation Service, sheet no. 75.8.

1 **IX. CONCLUSION**

2 The SoCalGas and SDG&E low OFO proposal is remarkably similar to the PG&E  
3 methodology, differing only to reflect the differences in the gas transmission system design  
4 between the two utilities. It does not make sense to force-fit PG&E’s methodology onto the  
5 SoCalGas and SDG&E gas transmission system, which was never designed to provide services  
6 that way. The Commission agreed with this rationale in 2009, and nothing has changed that  
7 should alter that conclusion. Shell’s statement that “[a]ll market participants pay for the line-  
8 pack flexibility, but only SoCalGas/SDG&E get to use it”<sup>12</sup> perfectly illustrates Shell’s incorrect  
9 views on this topic. All customers are in fact benefiting from the use of linepack as that is what  
10 SoCalGas and SDG&E use to manage changes in demand and avoid customer curtailments. For  
11 these reasons, the Commission should once again soundly reject Shell’s linepack-related position  
12 and proposals.

13 **X. QUALIFICATIONS**

14 My name is David M. Bisi. I am employed by SoCalGas as the Gas Transmission  
15 Planning Department Manager. My business address is 555 West Fifth Street, Los Angeles,  
16 California, 90013-1011.

17 I received a Bachelor of Science degree in Mechanical Engineering from the University  
18 of California at Irvine in 1989. I have been employed by SoCalGas since 1989, and have held  
19 positions within the Engineering, Customer Services, and Gas Transmission departments.

20 I have held my current position since April, 2002. My current responsibilities include the  
21 management of the Gas Transmission Planning Department responsible for the design and  
22 planning of SoCalGas and SDG&E’s gas transmission and storage systems. As such, I am  
23 responsible for: ensuring that the transmission system meets the CPUC-mandated design

---

<sup>12</sup> Prepared Testimony of Laird Dyer at p. 10.

1 standards for core and noncore firm service over a 25-year forecast period; recommending  
2 improvements and additions as necessary; monitoring the changing dynamics of the gas  
3 transmission system as new load centers develop and new supply receipt points are created;  
4 alerting management when operating precautions or changes become necessary; performing  
5 short-term capacity analyses for customer service requests from the transmission system;  
6 evaluating system impacts from storage expansion projects and new product offerings to  
7 customers; and developing staff to maintain continuity and consistency in system planning.

8 I have previously testified before the Commission.

9 This concludes my prepared rebuttal testimony.