

Application No: A-11-11-\_\_\_\_\_  
Exhibit No: \_\_\_\_\_  
Witness: Jeffrey G. Reed

In the Matter of Application of Southern  
California Gas Company (U904G) to  
establish a Compression Services Tariff

Application 11-11-\_\_\_\_\_  
(Filed November 3, 2011)

**CHAPTER II**  
**SERVICES, CUSTOMER DEMAND AND BENEFITS**  
**PREPARED DIRECT TESTIMONY OF**  
**JEFFREY G. REED**

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

November 3, 2011

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1 **CHAPTER II**

2 **SERVICES, CUSTOMER DEMAND AND BENEFITS**

3 **PREPARED DIRECT TESTIMONY**

4 **OF JEFFREY REED**

5 **I. INTRODUCTION**

6 **A. Summary Description of Proposal**

7 SoCalGas proposes in this Application a new tariff service (“Compression Services  
8 Tariff”), the language of which is provided in Appendix A, to meet the current and future needs  
9 of non-residential customers requiring natural gas compression above standard line pressure for  
10 their end-use applications. Examples of customer end-use applications that can be served by the  
11 proposed tariff include natural gas vehicle (“NGV”) refueling operations, Combined Heat and  
12 Power (“CHP”) facilities, and peaking power plants. As discussed more fully below, SoCalGas  
13 already has existing authority for similar services and the proposed tariff service is intended to  
14 respond to customer demand, promote the adoption of environmentally beneficial uses of natural  
15 gas, create new opportunities for new and existing service providers, and do so all while  
16 providing a net benefit to ratepayers. Under the proposed Compression Services Tariff,  
17 SoCalGas will own and operate dedicated gas compressors and related equipment on the  
18 customer’s site to provide gas at pressure as requested by the customer and agreed to by  
19 SoCalGas pursuant to an agreement (a form of which is provided in Appendix B). Through this  
20 Compression Services Tariff, SoCalGas proposes to own, operate, and maintain facilities up to  
21 the point of compression service delivery as described further in this application.

1           SoCalGas developed the Compression Services Tariff in response to customer inquiries  
2 and, if approved, anticipates an increase in such inquires and service requests. Significantly, the  
3 Compression Services Tariff is consistent with, and supportive of, existing state law and  
4 Commission policy (discussed in Chapter I) which encourages utilities to propose programs that  
5 increase the environmentally beneficial use of natural gas in end-use applications such as NGVs  
6 and CHP. Increased adoption of environmentally beneficial CHP and expanded use of natural  
7 gas as a vehicle fuel are both strongly supported in state law and Commission policy and the  
8 proposed Compression Services Tariff can serve as an enabler of increased adoption of these  
9 applications. Importantly SoCalGas will not provide refueling facilities through the proposed  
10 Compression Services Tariff, but will facilitate the development of refueling infrastructure by  
11 offering its customers additional options for developing their projects.

12           Currently, SoCalGas delivers natural gas to its customers at pressures ranging from eight  
13 inches of water column (approximately one third of a pound per square inch) to several hundred  
14 pounds per square inch (“psi”). Delivery pressure fluctuates depending on where a customer  
15 connection is located on SoCalGas’ system. SoCalGas, however, does not guarantee non-  
16 standard pressure levels under its standard tariff terms.

17           For customers that wish to receive natural gas at non-standard pressures, existing tariff  
18 Rule 2 provides authority for SoCalGas, at its discretion, to accommodate that request within  
19 specific parameters defined in that tariff. General Order (“G.O.”) 96-B provides further  
20 authority for SoCalGas to, at its discretion, accommodate such specialized requests from

1 government entities under terms that deviate from the standard terms specified in tariff Rule 2  
2 including cost factors and term of agreement.<sup>1</sup>

3 More specifically, Tariff Rule 2 provides authority for SoCalGas to enter into a special  
4 commercial agreement with a customer to plan, build, own, and operate special facilities to  
5 deliver gas under pressure conditions that depart from system pressure conditions at the  
6 customer's location. Tariff (Rule 2) provides that, upon a customer's request and the utility's  
7 acceptance, pressure may be provided at specified pressure of two pounds, five pounds,  
8 fluctuating pressures from the point of service, or such other pressure as the Utility and the  
9 Customer agree to.<sup>2</sup> The standard terms and incremental rate methodology to ensure full cost  
10 recovery from the tariff customer for dedicated facilities associated with non-standard delivery  
11 terms are specified in the tariff.

12 However, the Special Facilities provision of Rule 2<sup>3</sup> historically has been used only for  
13 the installation of permanent facilities (typically greater than fifty years of useful life). The  
14 Compression Services Tariff proposed in this application provides commercial terms and full-  
15 cost rate treatment tailored to shorter-lived facilities and customer agreements of varying term.  
16 Under the Compression Services Tariff, upon a customer's request and SoCalGas' acceptance,  
17 SoCalGas would plan, install, own, operate, and maintain compression and associated dedicated  
18 facilities on the customer's premises and charge the customer a rate designed to recover the full  
19 cost of service including capital, O&M and all applicable overheads over the agreed contract

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<sup>1</sup> G.O. 96-B Sec. 8.2.3 reads, in part, "At all times, a utility other than a telephone corporation may provide service (other than resale service) to a government agency for free, or at reduced rates and charges, or under terms and conditions otherwise deviating from its tariffs then in effect."

<sup>2</sup> SoCalGas tariffs Rule 2, Sheet 2, Section C "Pressure" <http://socalgas.com/regulatory/tariffs/tm2/pdf/02.pdf>

<sup>3</sup> SoCalGas tariffs Rule 2, Sheet 7, Section O "Special Facilities" <http://socalgas.com/regulatory/tariffs/tm2/pdf/02.pdf>

1 term. This tariff service would be provided pursuant to a specifically negotiated contract (a form  
2 of which is included in this Application). Customer charges would be based on a full cost-of-  
3 service calculation including capital cost, maintenance, administration and overhead costs on a  
4 fully loaded basis as described in Chapter III.

5 Examples of dedicated facilities to be installed for the purpose of delivering service under  
6 the Compression Services Tariff include: gas compressors, controls and, where necessary to meet  
7 the tariff customer requirements and duty cycle, peripheral equipment such as dehydration  
8 equipment and storage. In some cases, factory packaged units incorporating compressors,  
9 controls and peripheral equipment may be used in the provision of tariff services. The contract  
10 will specify the point of service delivery for compressed gas up-stream of the customer's end-use  
11 facilities. Beyond the point of service delivery, SoCalGas will not participate in, nor have any  
12 obligation for, the tariff customer's operations.

13 The proposed tariff will be available to all non-residential SoCalGas customers. No pre-  
14 determined facility size limits or pressure levels will be defined. Although any non-residential  
15 customer may request service under the proposed Compression Services Tariff, agreement to  
16 provide service is at SoCalGas' discretion and will depend on non-discriminatory factors such as  
17 safety, system capacity, SoCalGas resource availability, technical feasibility, and acceptability of  
18 commercial terms. The Compression Services Tariff is a fully elective, optional tariff service  
19 and will not be tied to any other tariff or non-tariff services the customer may receive from  
20 SoCalGas such as transportation or commodity services nor change the manner in which such  
21 service is delivered.

1           **B. Request and Summary of Arguments for Approval**

2           SoCalGas requests approval of the Compression Services Tariff as described in this  
3 Testimony (see Appendix A – proposed tariff “GO-CMPR”).

4           There are several compelling reasons for the Commission to approve SoCalGas’  
5 proposed Compression Services Tariff including the following: (1) the proposed service is a  
6 natural extension of existing utility service as SoCalGas currently provides natural gas service at  
7 a variety of pressures and has authority to enter into agreements to provide natural gas at  
8 specified pressure conditions; (2) the proposed service is in the public interest because it supports  
9 increased adoption of NGVs as well as combined heat and power systems, both articulated  
10 policy priorities of the Commission; (3) the proposed tariff is designed not to burden non-  
11 participating ratepayers with the cost of providing the service; and (4) the proposed tariff service  
12 creates expanded business opportunity for both new and existing equipment and service  
13 providers in natural gas refueling and CHP projects (see Section V – Support of Market  
14 Participants).

15           **C. Organization of Testimony**

16           This testimony (Chapter II) is divided into the following sections: (i) customer demand  
17 for the proposed service; (ii) description of the proposed service and tariff provisions; (iii)  
18 ratepayer benefits; (iv) how the proposed tariff supports competitive markets; and (v) summary  
19 and conclusions. The testimony in Chapter I provides the policy foundations for the  
20 Compression Services Tariff and witness Reyes’ testimony in Chapter III provides details on  
21 accounting controls and procedures that will track, record, and segregate costs associated with  
22 the proposed tariff service, ensuring that ratepayers are reimbursed at full cost for utility  
23 activities funded through general rates that are used in the delivery of the tariff service.

1 **II. MARKET NEED FOR PROPOSED SERVICES**

2 **A. Potential Compression Services Customers**

3 Although the Compression Services Tariff is not limited to any particular non-residential  
4 customer groups or end-use applications, SoCalGas has identified the greatest initial potential  
5 demand for the Compression Services Tariff to be from those wishing to receive gas at pressure  
6 to serve their NGV refueling and CHP facilities. NGV refueling facilities typically require  
7 natural gas at 3600 psi. CHP facilities typically require natural gas pressure between 75 psi (for  
8 micro-turbines) and 500 psi for larger turbines. Peaking generation facilities, requiring over 500  
9 psi, and some industrial processes would also be candidates for compression services.

10 As it relates to natural gas vehicle refueling, potential compression tariff customers  
11 would include public agencies, private fleet owners and Compressed Natural Gas (“CNG”)  
12 retailers. Indeed, the Compression Services Tariff makes available an additional option to these  
13 customers for meeting pressure requirements without the need to directly procure or provide for  
14 the associated capital investment, facility development, or the costs and responsibilities for  
15 operation and maintenance of the compression facilities.

16 As shown below and discussed in Chapter I, expanded use of NGVs and CHP facilities  
17 provides environmental benefits to natural gas ratepayers and others residing in southern  
18 California. Furthermore, as discussed in Chapter I, energy utility programs that support the  
19 expansion of NGV and CHP use are encouraged by both state law and Commission policy.  
20 Indeed, the proposed compression tariff supports these goals and does so in a way that does not  
21 burden ratepayers, is provided in a competitively neutral manner, and therefore should be  
22 approved by this Commission.

1           **B.     Market Need for Proposed Services to Support Natural Gas Transportation**

2                   **1.   Opportunity for Growth in the Use of Natural Gas for Transportation**

3           The use of natural gas as a transportation fuel currently has reached only a small fraction  
4 of its potential to meet the State’s clean air policy goals for the transportation sector. The growth  
5 in CNG fuel consumption is tracking below the “conservative” case forecast laid out in the State  
6 Alternative Fuels Plan developed by the California Energy Commission in 2007 (see Exhibit 1  
7 below).<sup>4</sup> The growth rate in the use of natural gas for transportation in California has been 4.7%  
8 per year over the period 2006 to 2010 compared to the State’s moderate forecast plan of 12.9%  
9 per year and the conservative forecast of 6.5% per year during this same period.<sup>5</sup> The market is  
10 clearly failing to develop to the potential identified in the State’s plan. This is in sharp contrast  
11 to international markets, such as Europe, where the annual growth rate in natural gas vehicle  
12 population has averaged 14% between 2000 and 2010.<sup>6</sup> The proposed Compression Services  
13 Tariff provides an additional resource for customers wishing to develop CNG fueling facilities  
14 and can thereby help close the gap between current growth rates in the use of natural gas for  
15 transportation and the State’s goals.

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<sup>4</sup> Chart data from total reported sales volumes for SoCalGas’ G-NGV tariff and equivalent NGV tariffs for SDG&E and PG&E, and California Energy Commission & CARB, “Natural Gas Scenarios”, AB1007 State Alternative Fuels Plan, May 31, 2007; work papers available upon request.

<sup>5</sup> Calculations derived from total reported sales volumes for SoCalGas’ G-NGV tariff and equivalent NGV tariffs for SDG&E and PG&E, and California Energy Commission & CARB, “Natural Gas Scenarios”, AB1007 State Alternative Fuels Plan, May 31, 2007

<sup>6</sup> Calculations derived from IANGV NGV Global website <http://www.iangv.org/tools-resources/statistics.html>, “NGVs by Region”; work papers available upon request.

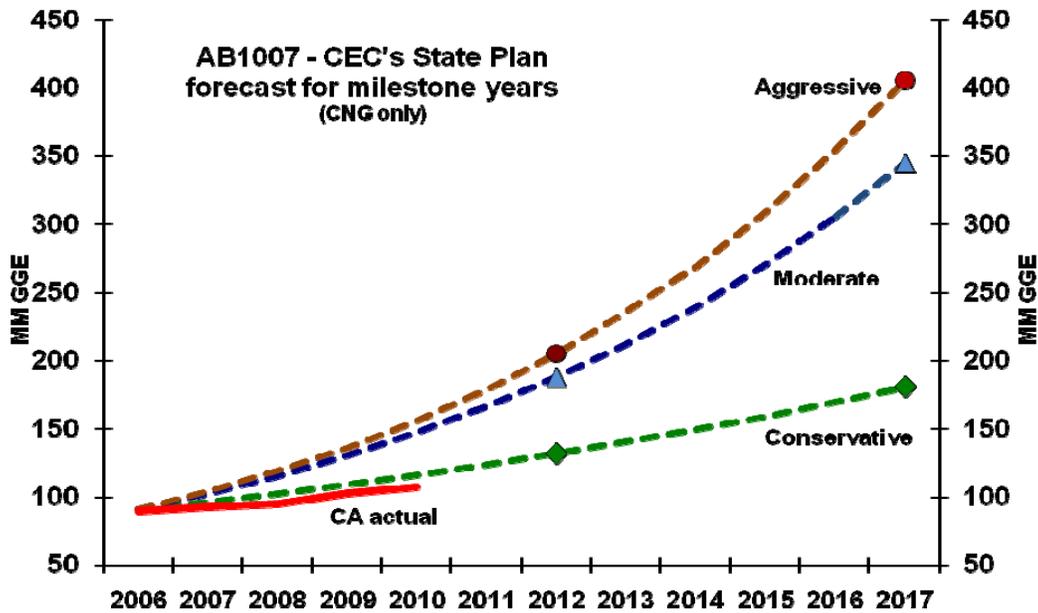


Exhibit 1 – CEC AB1007 2017 milestone forecast vs. CA actual NGV throughput

If California could accelerate the adoption of NGVs and achieve the growth forecast in the aggressive case in the alternative fuels plan, greenhouse gas emissions in California could be reduced by 1.55 million tons annually within 10 years.<sup>7</sup> As described below, growing national support, renewed interest from vehicle manufacturers, and low natural gas prices create a window of opportunity for the State and the Commission to take action to dramatically increase the use of natural gas as a clean transportation solution for California in order to better achieve state environmental policy goals.

<sup>7</sup> Calculations derived from CEC State Alternative Fuels Plan 2007 CEC-600-2007-011-CMF and ARB LCFS Final Statement of Reasons; work papers available upon request.

## 2. Current Opportunity

The transportation sector in the United States consumed over 5.0 billion barrels of oil in 2008<sup>8</sup> and the U.S. now relies on foreign energy supplies to provide 49% of our transportation needs.<sup>9</sup> The U.S. transportation sector in 2008 generated over 1,886 million metric tons of annual carbon dioxide (CO<sub>2</sub>) equivalent emissions.<sup>10</sup> California consumed 585 million barrels of oil in 2008,<sup>11</sup> generating approximately 175 million metric tons of annual carbon dioxide (CO<sub>2</sub>) equivalent emissions.<sup>12</sup> Both the U.S. and California's dependence on petroleum causes massive amounts of air pollution including toxic emissions with significant adverse health impacts. For example, the South Coast Air Quality Management District (SCAQMD) links poor air quality and toxic emissions to respiratory illness, increased cancer risk, and premature deaths.<sup>13</sup> Furthermore, Nitrogen Oxide (NO<sub>x</sub>) emissions are a precursor to ozone.<sup>14</sup> Ozone has a damaging impact to humans at the earth's surface.<sup>15</sup> Mobile sources are responsible for more than 90% of

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<sup>8</sup> EIA Annual Energy Review 2010 "No. DOE/EIA-0384(2010) October 2011

<http://www.eia.gov/totalenergy/data/annual/pdf/aer.pdf> Table 5.13c "Petroleum Consumption Estimates: Transportation Sector, Selected Years, 1949-2010" 2008 revised figure 13,704 thousand barrels per day x 365 = 5.0 billion barrels.

<sup>9</sup> EIA website "How dependent are we on foreign oil?"

[http://www.eia.gov/energy\\_in\\_brief/foreign\\_oil\\_dependence.cfm](http://www.eia.gov/energy_in_brief/foreign_oil_dependence.cfm)

<sup>10</sup> US EPA Inventory of U.S. Greenhouse Gas Emissions and Sinks: 1990-2008 – Executive Summary, April 2010, page 16, Table ES-7: U.S. Greenhouse Gas Emissions Allocated to Economic Sectors

<sup>11</sup> EIA State Energy Consumption Estimates/2009 Consumption Summary Tables DOE/EIA-0214(2009)

[http://www.eia.gov/state/seds/sep\\_use/notes/use\\_print2009.pdf](http://www.eia.gov/state/seds/sep_use/notes/use_print2009.pdf) Table CT7 "Transportation Sector Energy Consumption Estimates, Selected Years, 1960-2009, California" 2008 revised figure total petroleum 585,318 thousand barrels

<sup>12</sup> California Air Resources Board, "California Greenhouse Gas Inventory for 2000-2008", 2008 Transportation Greenhouse Gas Inventory

<sup>13</sup> "...the overall Basin cancer risk from air toxics based on the annual average levels calculated from the ten monitoring sites data was approximately 1,200 per million...", South Coast Air Quality Management District, "Multiple Air Toxics Exposure Study", September 2008, Chapter 6, page 6-1; "...ambient air pollution continues to be linked to increases in respiratory illness (morbidity) and increases in death rates (mortality)...", South Coast Air Quality Management District, "Final 2007 AQMP Appendix I", Page I-1

<sup>14</sup> SCAQMD 'Final 2007 AQMP', Appendix II, Page II-1-5

<sup>15</sup> SCAQMD 'Final 2007 AQMP', Appendix II, Page II-2-2

1 all NO<sub>x</sub> emissions generated in the SCAQMD basin.<sup>16</sup> Although natural gas has been a viable,  
2 clean, economic, and domestic transportation resource for over twenty years, it has reached only  
3 0.1% of total vehicle fuel use in United States.<sup>17</sup>

4 There is an opportunity for the Commission, through innovative policies and programs  
5 such as the Compression Services Tariff, to facilitate the development of NGV fueling  
6 infrastructure by Compression Services Tariff customers and other market participants; thereby  
7 helping to establish natural gas as a mainstream transportation fuel in the state. The Integrated  
8 Energy Policy Report forecasts a sustained price advantage of natural gas relative to petroleum  
9 fuels (see Exhibit 2).<sup>18</sup> Indeed, vehicle manufacturers have shown renewed interest in the NGV  
10 market with the introduction of new NGV models including the Chevrolet Express/GMC Savana  
11 Cargo Van and Ford MV-1 wheelchair accessible sedan. Other manufacturers such as Chrysler  
12 are planning to introduce CNG models into the marketplace within the next few years.<sup>19</sup> In  
13 addition, Ford has introduced CNG conversion ready vehicles such as the Ford E-series, F-series  
14 and the Transit Connect.<sup>20</sup> President Obama recently emphasized the importance of natural gas

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<sup>16</sup> SCAQMD 'Final 2007 AQMP', Appendix III, Page III-2-14 and III-2-15

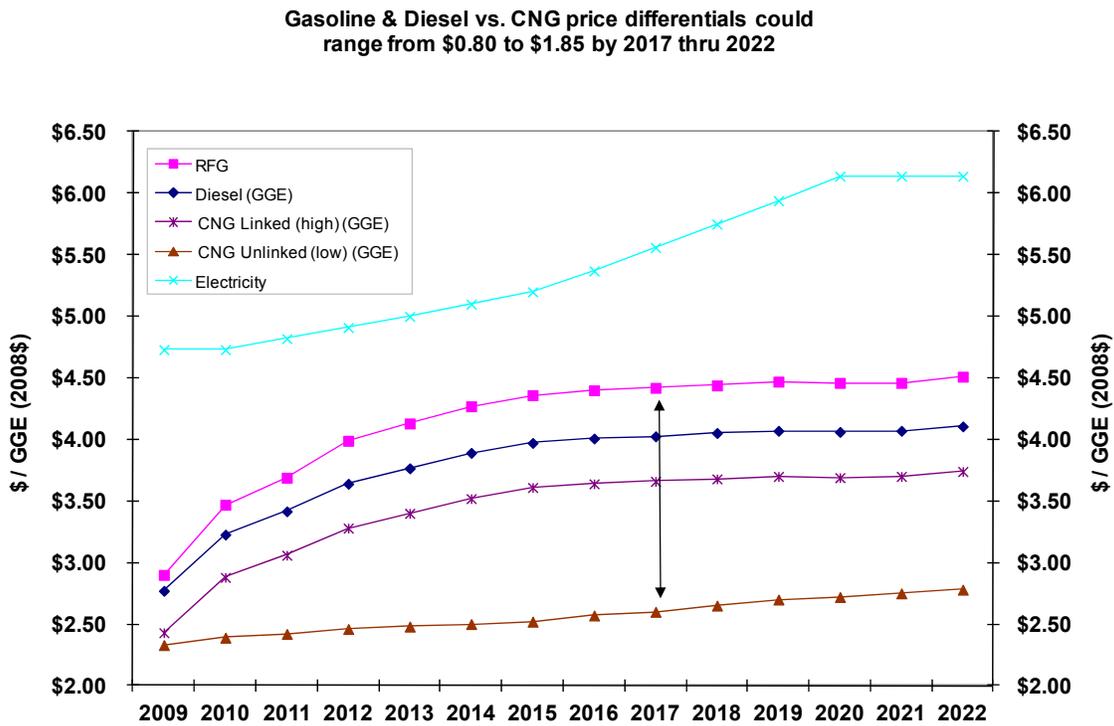
<sup>17</sup> EIA, Energy Consumption by Sector and Source, United States, AEO2011 Reference Case

<sup>18</sup> Chart data based on California Energy Commission "Transportation Energy Forecasts and Analyses for the 2009 Integrated Energy Policy Report" May 2010 CEC-600-2010-002-SF tables B-4, B-6, and B-8; work papers available upon request.

<sup>19</sup> Bloomberg, "Chrysler Will Start Selling Natural-Gas Vehicles in U.S. Market by 2017" April 12, 2011  
<http://www.bloomberg.com/news/2011-04-12/chrysler-plans-to-introduce-natural-gas-powered-vehicles-in-u-s-by-2017.html>

<sup>20</sup> Ford press release "First CNG-Powered Ford Transit Connect Taxis Begin Servicing Greater Los Angeles Area" September 8, 2011; AltFuelTrucks.com "Ford F- Series & E-Series CNG Trucks" page  
<http://www.altfueltrucks.com/ford-F-series.htm>

1 as a transportation fuel.<sup>21</sup> Rapid expansion of refueling infrastructure to support natural gas  
 2 refueling operations will be critical to realizing the potential of natural gas as a vehicle fuel. The  
 3 proposed Compression Services Tariff does not provide refueling facilities, but can facilitate  
 4 development of key infrastructure by those wishing to employ the service as a component of  
 5 their refueling facilities.



6  
 7 **Exhibit 2 – Transportation Fuel Forecast – 2009 IEPR**

<sup>21</sup> A White House press release entitled "Fact Sheet: America's Energy Security" dated March 30, 2011 states, "the President is calling on Congress to move forward with policies that can help unlock the promise of natural gas vehicles." Subsequent to this release, a new bill was recently introduced in Congress called "The New Alternative Transportation to Give Americans Solutions (NATGAS) Act of 2011" The proposed bill would create or extend tax credits for the purchase of vehicles and the installation of refueling stations. It would expand and modify previous alternative fuel vehicle and property tax credits.

1 In spite of its low adoption rate in the United States, natural gas is a proven, clean, mass-  
2 scale transportation solution in a number of countries. The population of NGVs in Europe has  
3 grown to over 1.3 million – roughly ten times the vehicle population in the US.<sup>22</sup> This shows  
4 that widespread use of natural gas as a vehicle fuel is not only a possible solution, but a proven  
5 solution.

### 6 **3. Market Development Requirements for Increasing the Use of Natural** 7 **Gas as a Transportation Fuel**

8 Experience has shown that, in addition to competitive fuel prices, three things are  
9 necessary for a rapid growth in NGV adoption: vehicle availability, fueling infrastructure, and  
10 consumer acceptance. History demonstrates that rapid growth in NGV adoption has required  
11 substantial policy and regulatory support to address all three of these issues.

12 Refueling infrastructure is critical. Availability of refueling infrastructure is an absolute  
13 prerequisite to providing the confidence required by manufacturers to develop vehicles and for  
14 consumers to have enough security in fuel availability to buy them. European countries have  
15 followed a variety of models, but, in general, have not excluded regulated or governmental  
16 entities from investment in refueling infrastructure. In Germany, where natural gas vehicle  
17 population and natural gas fuel use have grown at a compound rate of greater than 25% between  
18 2001 and 2010,<sup>23</sup> the majority of the supporting infrastructure, now over 900 fueling locations,  
19 was constructed by gas utilities.<sup>24</sup>

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<sup>22</sup> Source: IANGV website, <http://www.iangv.org/tools-resources/statistics.html> NGVs by Region: Europe, 1,372,262 vehicles; Ranked by Number, USA 2010, 112,000 vehicles

<sup>23</sup>Based on “CNG in Germany” presentation by Dr. T. Kehler, CEO of ErdgasMobile (available upon request) p. 16 and IANGV website, History data (<http://www.iangv.org/tools-resources/statistics.html>); work papers available upon request.

<sup>24</sup> “CNG in Germany” presentation by Dr. T. Kehler, CEO of ErdgasMobile (available upon request).

1 The proposed Compression Services Tariff does not require ratepayers to shoulder the  
2 financial burden of expanding CNG refueling infrastructure but rather is proposing to add an  
3 additional source of private investment to support refueling infrastructure expansion. The  
4 objective is not to replace but to add to other sources of private capital and to do so without  
5 burdening ratepayers or unfairly competing with non-utility market participants.

6 As discussed above, the California NGV market has failed to meet the State's growth  
7 targets for NGVs. Different approaches are clearly needed to realize the enormous potential of  
8 natural gas as a vehicle fuel in order to meet state policy goals. Approval of the Compression  
9 Services Tariff enables the Commission to provide strong leadership in supporting accelerated  
10 adoption of alternative fuel vehicles without imposing any material costs or risks on ratepayers.

#### 11 **4. Utility Role in Supporting NGV Market Growth**

12 The State Alternative Fuels Plan found that: “[m]andates alone will not achieve the single  
13 policy goals outlined or multiple goals as a group...it is clear that complementary government  
14 actions are needed to fully achieve the State's 2020 and longer-term reduction goals....Private  
15 sector investment, **including investor-owned and municipal utilities**, should be encouraged to  
16 become major new investors in the development and commercialization of electric drive and  
17 NGVs.”<sup>25</sup> (*emphasis added*) Clearly, innovative programs and additional solutions and options  
18 to support NGV adoption are needed if California is to meet its goals for low-emission  
19 transportation.

20 The Compression Services Tariff provides such an option in a way that promotes  
21 participation by existing and new service providers and does not burden ratepayers with

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<sup>25</sup> California Energy Commission, Commission Report, CEC-600-2007-011-CMF, “State Alternative Fuels Plan”, pages 7-8

1 additional costs associated with providing the service. SoCalGas believes that a variety of  
2 business models and approaches, including utility sponsored programs such as the one proposed  
3 herein, will be useful in accelerating the adoption of natural gas for use as a vehicle fuel.

4         Although the potential expansion of CNG retailing and public access refueling stations is  
5 a key potential benefit of the Compression Services Tariff, those activities will be undertaken  
6 entirely by the tariff customer. In fact, the proposed Compression Services Tariff responds to  
7 requests from customers for SoCalGas to provide compression services to support their NGV  
8 refueling facilities and support their adoption or expanded use of natural gas as a vehicle fuel.  
9 As such, any marketing or retailing activities associated with resale of CNG that a Compression  
10 Services Tariff customer may undertake are entirely separate from the tariff and SoCalGas will  
11 play no role in such activities. Under the Compression Services Tariff, selection of the location  
12 of CNG refueling is left to vehicle owners and providers of refueling services. The Compression  
13 Services Tariff simply provides gas at pressure to support those activities.

14         In view of the fact that gas compression can be provided by customers or third parties,  
15 SoCalGas has structured the Compression Services Tariff to provide a supporting refueling  
16 infrastructure option on a pricing basis that includes all associated costs and overheads, with no  
17 tie to monopoly utility services, and to offer the proposed tariff on a non-discriminatory basis to  
18 all qualifying customers. Furthermore, as discussed in Chapter III, full-cost accounting ensures  
19 that pricing of the proposed tariff services recovers tariff costs from the tariff customer without  
20 placing a cost burden on ratepayers in general.

21         The Compression Services Tariff also provides potential benefits to market participants  
22 through expanded bidding opportunities for outsourced construction or other work as well as  
23 utility procurement programs, including Diverse Business Enterprises (“DBE”) consideration.

1 As a tariff service, ongoing Commission oversight will ensure that ratepayer and market interests  
2 are protected through the life of the program.

### 3 **5. Transportation Sector Demand for the Proposed Services**

4 In order to assess the customer demand for the Compression Services Tariff to support  
5 the natural gas vehicle market, SoCalGas conducted a customer survey to evaluate customers'  
6 demand for compression services. SoCalGas' customer survey found that the Compression  
7 Services Tariff can help provide needed refueling infrastructure for operators of NGV fleets and  
8 retail refueling stations. Direct input from potential tariff customers in the transportation sector  
9 supports the potential demand for the proposed tariff. SoCalGas' research shows that having an  
10 additional option for compression services, provided by a utility provider on transparent terms,  
11 will create incremental adoption of CNG solutions and expand the CNG market at increased  
12 rates. SoCalGas conducted a survey of both existing CNG vehicle operators and prospective  
13 adopters of CNG for their fleets. Seventy-seven percent of potential tariff customers responding  
14 (64 total respondents) indicated that the proposed compression tariff services would make them  
15 more likely to build a new NGV station or enhance an existing one. Further, 71% of survey  
16 respondents that did not already own and operate CNG vehicles indicated that the proposed  
17 services would motivate them to adopt CNG vehicles sooner. Based upon customer perceptions,  
18 the proposed tariff services will likely accelerate the use of NGVs within California. Detailed  
19 results are located in Appendix C and summarized in Table 1.

**Table 1 Survey Results**

<b>Market Survey Question</b>	<b>Market Survey Results</b>
1. How beneficial do you see this proposed service* for CNG vehicle and station operators?	94% of customers found the proposed service beneficial - 67% responded “very beneficial” and 27% responded “somewhat beneficial”,
2. Would this new service make you more or less likely to either build a new CNG station or replace/enhance an existing one?	77% of customers responded that the proposed service would make them more likely to build a new CNG station or replace/enhance an existing one.
3. Would this tariff motivate you to adopt the use of CNG vehicles at your facility sooner?	71% of customers that did not already own and operate CNG vehicles responded that the proposed service would motivate them to adopt CNG vehicles at their facility sooner.
4. Which aspects of the high pressure delivery tariff are most appealing to you? Please rank at least the top 2 that appeal to you most (You must rank at least your top 2, but can rank all 5 if you would like). Choices include the following: <ul style="list-style-type: none"> <li>• Additional customer options/choice of service providers</li> <li>• Direct utility involvement</li> <li>• CPUC oversight</li> <li>• No upfront capital costs</li> <li>• All grant funding, rebates and incentives received automatically going to the customer in form of lower cost</li> </ul>	Customers ranked the choices in the following order, from most popular first to least popular last: <ol style="list-style-type: none"> <li>1. No upfront capital costs</li> <li>2. All grant funding, rebates and incentives received automatically going to the customer in form of lower cost</li> <li>3. Direct utility involvement</li> <li>4. Additional customer options/choice of service providers</li> <li>5. CPUC oversight</li> </ol>
* In the script used for customer calls, the service was described as “an optional new tariff, the ‘high pressure delivery tariff’, that will provide commercial and industrial customers with high pressure natural gas suitable for a number of applications, including fueling natural gas vehicles. Under the new tariff, SoCalGas will provide customers with high pressure natural gas by constructing, operating, and maintaining facilities on customer property downstream of the utility meter.” Further details are provided at Appendix C.	

2

Based on these survey results, SoCalGas’ expectation is that the Compression Services

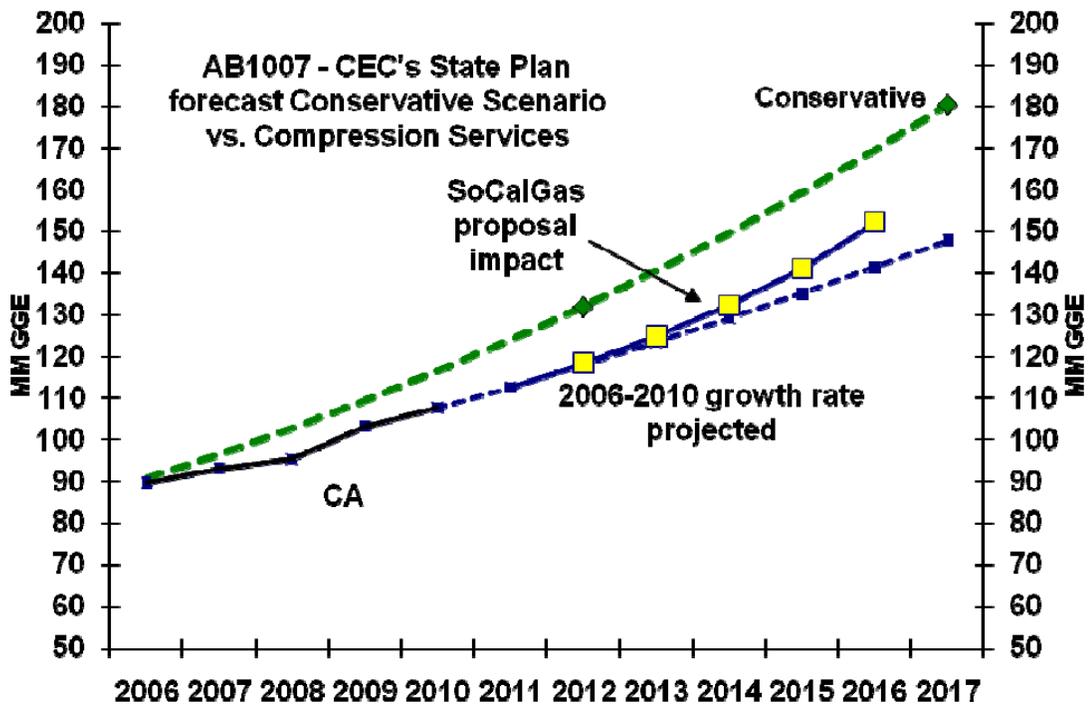
3

Tariff could facilitate 20 to 40 incremental CNG refueling installations over the coming five

4

years. The number of incremental facilities enabled by the proposed tariff cannot be determined

1 with certainty, but the potential benefits provided by the Compression Services Tariff, and the  
 2 absence of downside risks to ratepayers should projections fall short of expectation, justify  
 3 Commission approval of the Compression Services Tariff. Furthermore, as illustrated in Exhibit  
 4 3, the Compression Services Tariff can enable the market to increase the availability and use of  
 5 NGVs and thus help the State make significant progress toward closing the gap between actual  
 6 CNG adoption since 2006 and the conservative forecast proposed in the State Plan and increase  
 7 the rate of growth of CNG installations above the conservative case.



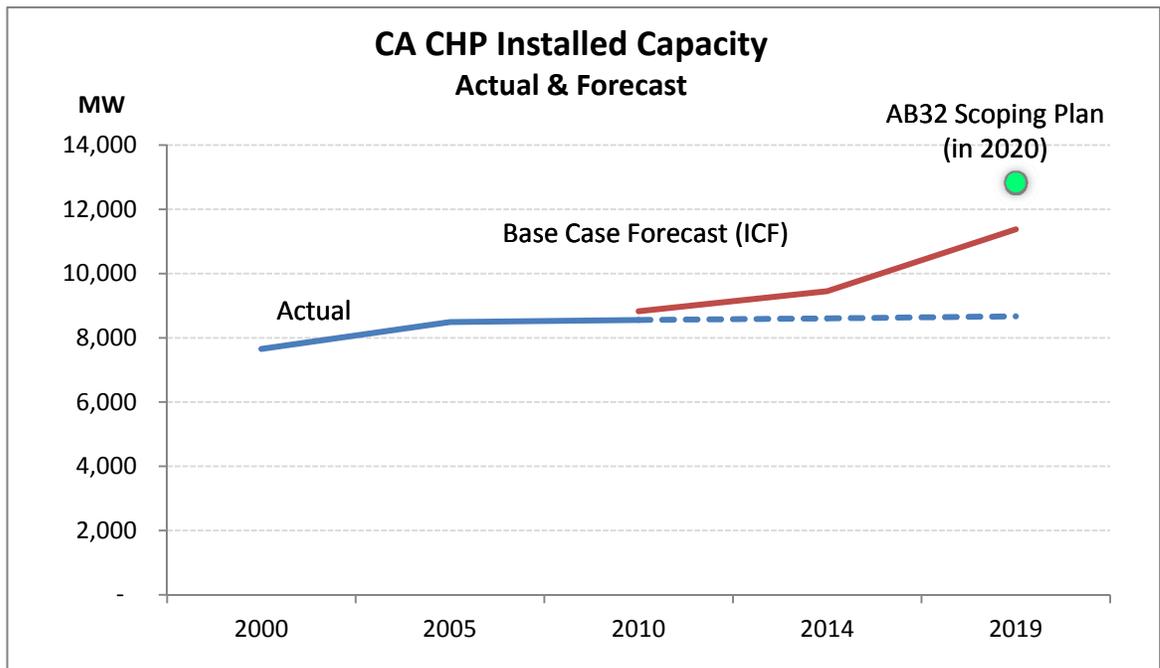
8  
 9 **Exhibit 3 AB1007 State Plan Conservative Scenario and Potential Impact of SoCalGas**  
 10 **Proposed Tariff**

11  
 12 The Compression Services Tariff is not only responsive to transportation segment  
 13 customer requests, but also has a strong foundation in public policy. As discussed more  
 14 thoroughly in Chapter I, State law encourages the use of NGVs to reduce greenhouse gas

1 emissions and other criteria pollutants and directs the Commission to encourage utility programs  
2 that support that goal.

### 3 C. Market Need for Proposed Services to Support Combined Heat and Power Facilities

4 In December of 2008, the AB 32 Scoping Plan set a target for new CHP installations  
5 totaling 4,000 MW statewide by 2020.<sup>26</sup> The CEC’s CHP market assessment, performed by  
6 ICF,<sup>27</sup> forecasts an additional 1,926 MW in CHP installed capacity for the state by 2019 in the  
7 base case (or most likely) scenario. Simply stated, there is a wide gap between the CEC’s base  
8 case forecast and the AB 32 Scoping Plan target.



9  
10 **Exhibit 4: California’s installed capacity versus projected forecast**

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<sup>26</sup> California Air Resources Board Climate Change Scoping Plan (pursuant to AB-32), December, 2008, pages 43-44

<sup>27</sup> California Energy Commission, “Combined Heat and Power Market Assessment,” April, 2010, prepared by ICF International, CEC-500-2009-094-F, Table C-1

1           Furthermore, the CHP capacity in California increased by only 65 MW over the past five  
2 years,<sup>28</sup> thus reflecting a very low level of growth (on the average of 13 MW per year) If this  
3 trend continues, CHP capacity in California will fall well short of even the base case forecast  
4 over the next several years.

5           The CEC base case scenario forecasts that as much as 12% of the new CHP installed by  
6 2019 would come from facilities over 20 MW, all of which would be gas turbines or combined  
7 cycle power plants requiring natural gas compression up to 600 psig.<sup>29</sup> Another 28% of the  
8 incremental CHP capacity would fall in the 5-20MW category, the majority of which would be  
9 turbines requiring pressures up to 450 psig. Another 37% of the incremental capacity are  
10 facilities in the 1-5MW range (including microturbines) requiring up to 250 psig. SoCalGas  
11 estimates that the cost of gas compression is typically 5-8% of the total CHP installed system  
12 cost. Thus, based on SoCalGas' analysis of the AB 32 Scoping Plan forecast, CHP  
13 operators/developers would need to invest an estimated \$18 - \$29 million per year for  
14 compression equipment in the SoCalGas service territory over the coming decade to keep pace  
15 with the AB 32 target (assuming that the market share of CHP in the SoCalGas service territory  
16 is 45% of the state total).<sup>30</sup>

17           As such, the Compression Services Tariff offers a potentially attractive project  
18 component to CHP facility developers and would materially reduce the total project capital  
19 requirement.

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<sup>28</sup> <http://www.eea-inc.com/chpdata/States/CA.html> downloaded July 22, 2011

<sup>29</sup>CEC "Combined Heat & Power Market Assessment," April 2010, prepared by ICF International, CEC-500-20090-094-F, Appendix C-1

<sup>30</sup> Assuming \$2,000/kW installed capacity CHP. Work papers available upon request.

1 **III. DESCRIPTION OF COMPRESSION SERVICES TARIFF**

2 As discussed briefly above, SoCalGas currently provides natural gas service to its  
3 customers at a variety of pressures. The utility, however, does not guarantee non-standard  
4 pressure unless a separate agreement is in place pursuant to Tariff Rule 2. As such, in addition to  
5 standard service at available line pressure (which varies depending on location on the system),  
6 the current SoCalGas Tariff Rule 2, Section O provides the authority for SoCalGas to, at a  
7 customer's request and the utility's acceptance, provide service under specific pressure  
8 conditions provided that SoCalGas and the customer mutually agree to the terms of such service  
9 and the customer pays for the incremental facilities and operating costs under terms specified in  
10 the tariff.

11 Therefore, based on increasing customer requests for higher pressure service under  
12 arrangements of varying duration, SoCalGas seeks authority to establish this Compression  
13 Services Tariff to meet these requests under terms that are tailored to the specific operating  
14 requirements. The terms in the standard tariff contract are modeled after SoCalGas Rule 2,  
15 Section O, but have been revised to meet the specific requirements of the proposed service such  
16 as the depreciable life of the facilities and operation and maintenance costs specific to the  
17 provision of compression services.

18 **A. Proposed Tariff**

19 Under the proposed Compression Services Tariff, the language of which is provided in  
20 Appendix A, SoCalGas will plan, design, procure, construct, own, operate, and maintain on  
21 customer premises, equipment associated with the compression of natural gas to meet customer-  
22 specified pressure requirements. A standard form of the service contract is attached as Appendix

23 **B. The contract terms, including cost and rate components, performance requirements, and**

1 payment terms are to be agreed upon in advance by the customer and SoCalGas. Customers may  
2 be offered the opportunity to renew the service agreement following the end of the initial term,  
3 consistent with the then current tariff terms. SoCalGas will negotiate each contract on an  
4 individual basis to meet its specific project requirements with non-discriminatory terms and  
5 conditions.

6 SoCalGas does not intend to place any specific limitation on which non-residential  
7 customers may request service under the Compression Services Tariff. Specifically, no pre-  
8 determined location, facility size limits or pressure levels will be defined. For small-scale  
9 applications, such as small-scale natural gas vehicle refueling installations to serve small fleet  
10 owners, tariff service may be provided using factory integrated equipment packages that  
11 combine compression equipment and all peripherals into a single manufactured unit. Although  
12 any non-residential customer may request service under the proposed Compression Services  
13 Tariff, any agreement to provide service is at SoCalGas' discretion and will depend on non-  
14 discriminatory factors such as safety, system capacity, SoCalGas resource availability, technical  
15 feasibility, and acceptability of commercial terms. Finally, the Compression Services Tariff is a  
16 fully elective optional tariff service and will not impact or be tied to any other tariff or non-tariff  
17 services.

18 Under the Compression Services Tariff, the price calculation will be case-specific and  
19 will ensure that the full cost-of-service including loaders will be charged to each customer under  
20 the tariff. The capital charge component will be calculated using the utility authorized rate of  
21 return. Tariff costs will include all direct and indirect costs required to provide service under the  
22 tariff as explained in Chapter III. Rates paid by each customer and terms of service will be  
23 governed by a specific contract with each tariff customer.

1 The primary activities required to deliver the proposed tariff services are:

- 2 • Customer Outreach
- 3 • Contract Development
- 4 • Engineering and Cost Estimation
- 5 • Procurement and Construction
- 6 • Engineering Oversight
- 7 • Operations and Maintenance

8 In addition, indirect administrative and general costs will be allocated to the tariff service  
9 as described by witness Reyes in Chapter III.

10 Notification to prospective customers of the availability of the Compression Services  
11 Tariff and its features will be conducted in conjunction with ongoing outreach and promotional  
12 activities within the existing SoCalGas Commercial and Industrial Services Department and the  
13 Natural Gas Vehicle program. Costs of any activities specific to the Compression Services tariff  
14 will be charged to a Compression Services cost accounts on a fully loaded basis. Customers that  
15 are interested in taking service under the Compression Services Tariff will request a preliminary  
16 assessment of feasibility and cost. The cost for initial high-level assessments will be covered  
17 through indirect charges under the tariff. Prospective tariff customers will be required to fund  
18 any required site evaluation and design activities conducted on their behalf prior to execution of  
19 a tariff agreement. The extent and necessity of these pre-contract evaluation and design  
20 activities will depend on the size and complexity of the required facilities and site conditions.  
21 Assuming continuing interest, customer-specific terms within the approved tariff contractual  
22 framework will be developed and executed with the tariff customer.

1           Once agreements are executed, the required facilities will be permitted, engineered,  
2           procured, and constructed through contracts with qualified contractors. Procurement and  
3           contracting for Engineering, Procurement, and Construction (“EPC”) services and project  
4           oversight will be provided by utility staff. It is expected that facilities will generally be  
5           contracted on a turnkey basis. SoCalGas may also contract ongoing operation and maintenance  
6           of the facilities. Any work performed by utility staff will be charged to the cost account for the  
7           tariff customer.

8           The specifics of segregation of costs, cost allocations and loaders are discussed in detail  
9           in Chapter III of this Application.

10          Although some of the costs under the proposed tariff are expected to be outsourced, there  
11          are some activities in support of this tariff service that will be undertaken within the utility.  
12          None of the incremental costs of providing service under this Compression Services Tariff have  
13          been included in SoCalGas’ General Rate Case (“GRC”) filing. To the extent that resources  
14          embedded in general rates are used to support the proposed tariff service, those costs will be  
15          reimbursed to ratepayers as described in detail in Chapter III.

#### 16   **IV.   RATEPAYER BENEFITS**

17          As described more fully below, to the extent that an adopted Compression Services Tariff  
18          results in an expansion of the use of CHP systems and NGV’s in SoCalGas’ service territory,  
19          ratepayers benefit from avoidance of emissions from conventional generation of electricity and  
20          reduced pollution from gasoline and diesel vehicles. Increased use of natural gas as a vehicle  
21          fuel also creates a potential natural gas transportation rate reduction associated with increased  
22          system throughput. Although these benefits are dependent on the market demand for the

1 Compression Services Tariff, there is no significant risk to ratepayers in the Commission's  
2 authorizing SoCalGas to offer the Compression Services Tariff.

### 3 **A. NGV Benefits**

4 If SoCalGas' Compression Services Tariff enables the market to develop 20-40  
5 incremental NGV fueling stations in the first five years of implementation, the impact on  
6 SoCalGas ratepayers due to higher system throughput resulting in lower transportation rates  
7 could be between \$170,000 and \$337,000 per year in net ratepayer benefits.<sup>31</sup> In addition,  
8 between 21,000 and 42,000 tons of annual GHG emissions,<sup>32</sup> valued at \$630,000-\$1,300,000 per  
9 year,<sup>33</sup> would be avoided, assuming only non-renewable natural gas is used.

10 The potential environmental benefits from expanded use of natural gas, including  
11 renewable natural gas, as a vehicle fuel are significant. CARB's carbon intensity specifications  
12 for transportation fuels show that natural gas, when used as a transportation fuel, has 28.2% and  
13 29.1% less carbon intensity than diesel and gasoline, respectively. When renewable natural gas  
14 is used, the benefit increases dramatically to 85.8% and 86% less carbon intensity than diesel and  
15 gasoline, respectively.<sup>34</sup>

16 Natural gas (and renewable natural gas) produces much lower criteria pollutant emissions  
17 than gasoline and diesel. According to the Full Fuel Cycle Assessment developed by CEC under

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<sup>31</sup> Net benefits \$9,000/year per station, assuming each station takes 339,000 therms/year and requires incremental costs to serve the customer (including services and meters but excluding distribution or upstream pressure betterments)

<sup>32</sup> Based on California staff report, "Initial Statement of Reasons Proposed Regulation to Implement the Low Carbon Fuel Standard, Volume I" March 5, 2009, Table IV-2 "Adjusted Carbon Intensity Values for Diesel and Fuels that Substitute for Diesel" p. IV-4 <http://www.arb.ca.gov/regact/2009/lcfs09/lcfsisor1.pdf>, workpapers available upon request.

<sup>33</sup> Based on GHG compliance costs adopted by the Commission in setting 2009 Market Price Referent, Resolution E-4298, which estimates a "levelized price of \$30/CO2 ton in 2007\$" (p.9)

<sup>34</sup> California Air Resources Board Final Regulation Order, Low Carbon Fuel Standard, Table 6 and Table 7, pages 47 through 50

1 Assembly Bill 1007 NGVs, on a “wells to wheel” basis, have 72% less Volatile Organic  
2 Compounds (“VOC”) emissions, 12% to 19% lower Oxides of Nitrogen (“NO<sub>x</sub>”) emissions,  
3 and 36% to 95% less air toxic emissions than gasoline powered light-duty vehicles. Compared  
4 to heavy-duty vehicles, natural gas produces 72% less VOC emissions, up to 4% less NO<sub>x</sub>  
5 emissions, and up to 6% less air toxic emissions than diesel powered heavy-duty vehicles.<sup>35</sup>

6 Due to the potential health impacts from mobile source criteria pollutants, including air  
7 toxics, increasing the use of NGVs as a replacement for gasoline and diesel vehicles benefits  
8 public health. In a recent study, the South Coast Air Quality Management District concluded  
9 that “the overall Basin cancer risk from air toxics based on the annual average levels calculated  
10 from the ten monitoring sites data was approximately 1,200 per million.”<sup>36</sup> Further, the study  
11 stated that “diesel exhaust was the key driver for air toxics risk”, “diesel particulate continues to  
12 be the dominant toxic air pollutant based on cancer risk”, and “study findings therefore clearly  
13 call for a step-up in reducing diesel emissions as early as practicable and as aggressively as  
14 feasible.”<sup>37</sup> Additionally, the California Air Resources Board concluded in the Diesel Risk  
15 Reduction Plan that “for a significant number of applications, lower PM emitting alternatives to  
16 existing diesel-fueled engines exist” and “current alternatives to diesel-fueled vehicles and  
17 equipment include...natural gas fueled vehicles and equipment.”<sup>38</sup> As a result, public health will  
18 be improved by greater adoption of NGVs.

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<sup>35</sup> California Energy Commission, Consultant Report, CEC-600-2007-004-REV, “Full Fuel Cycle Assessment: Well-To-Wheels Energy Inputs, Emissions, and Water Impacts”, page 36, Table 3-13.

<sup>36</sup> South Coast Air Quality Management District, “Multiple Air Toxics Exposure Study”, September 2008, Chapter 6, page 6-1

<sup>37</sup> South Coast Air Quality Management District, “Multiple Air Toxics Exposure Study”, September 2008, Chapter 6, pages 6-1 and 6-2

<sup>38</sup> California Air Resources Board, “Diesel Risk Reduction Plan”, October 2000, page 2

1                   **B. CHP Benefits**

2                   Similarly, expanded use of CHP creates substantial environmental benefits for ratepayers.  
3                   The AB 1613 framework is founded on reduction of GHG, NOx, and other criteria pollutants.  
4                   Attainment of the CEC all-in case deployment goals will result in an estimated annual reduction  
5                   in GHG emissions of 4.3 million metric tons CO<sub>2</sub>e GHG statewide by 2019.<sup>39</sup> Although the  
6                   proposed Compression Services Tariff cannot, by itself, spur wide-spread adoption of CHP, the  
7                   capital infusion provided to the CHP segment can help support market expansion. Based on  
8                   SoCalGas estimates of CHP system costs and the GHG reductions calculated by the CEC,<sup>40</sup>  
9                   every \$10 million in capital investment in the CHP sector results in annual reduction of 4,250  
10                  metric tons of GHG. Applying that ratio, if, through adoption of the Compression Services  
11                  Tariff, SoCalGas were to provide \$20 million in incremental capital to the CHP sector in the  
12                  form of compression facilities over the next five years (supporting existing CHP developers),  
13                  8,506 metric tons of GHG would be avoided annually once the systems were deployed.  
14                  Assuming that compression contributes some 5-8% to the capital cost of an average CHP project,  
15                  SoCalGas would be involved with projects saving a total of 106,000-170,000 metric tons of  
16                  GHG per year.<sup>41</sup>

17                   **C. Other Applications**

18                   Although SoCalGas’ initial assessment of customer applications for the proposed  
19                   Compression Services Tariff identified NGV and CHP applications as those offering the most

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<sup>39</sup> California Energy Commission, “Combined Heat and Power Market Assessment,” October 2009, prepared by ICF International, CEC-500-2009-094-D Table C-10 p.C-14

<sup>40</sup> Assuming total CHP system costs of \$2,000/kW, statewide total new CHP 5,115 MW by 2019 (California Energy Commission, “Combined Heat and Power Market Assessment,” October 2009, prepared by ICF International, CEC-500-2009-094-D, p. C-9), and GHG reductions 4.351 million metric tons/year by 2019 (p.C-10)

<sup>41</sup> Calculations based on California Energy Commission, “Combined Heat and Power Market Assessment,” October 2009, prepared by ICF International, CEC-500-2009-094-D; work papers available upon request.

1 potential benefit, other customer applications will likely emerge. For example, a peak power  
2 generation facility operator has expressed interest in the proposed tariff. Other applications will  
3 likely emerge once the tariff is approved.

4 In summary, the proposed tariff offers significant potential benefits to ratepayers  
5 including emission reductions, increased gas system utilization, and other environmental benefits  
6 as directed by PUC Code 740.8. Significantly, the cost of providing these benefits is borne by  
7 customers being served under this tariff. Clearly, the proposed tariff supports Commission  
8 policy objectives and provides net benefit to ratepayers. Therefore, approval of the Compression  
9 Services Tariff is in the public interest.

#### 10 **V. SUPPORT OF MARKET PARTICIPANTS**

11 The Compression Services Tariff is fully consistent with, and supportive of, the  
12 development of competitive markets for equipment and services needed to provide compression  
13 services and can also enable market development for the end uses for which tariff customers  
14 employ the Compression Services Tariff. The Compression Services tariff avoids inaccurate  
15 price signals or disadvantage to non-utility market participants by charging a tariff rate that is  
16 “fully compensatory”. This means that the rate charged to the tariff customer bears all costs  
17 associated with provision of the service. As described in Chapter II, this includes all direct costs,  
18 third-party expenses, and fully allocated loaders and overheads.

19 In addition, the Compression Services Tariff will expand opportunities for equipment and  
20 service providers. The Compression Services Tariff will not displace competitive market  
21 offerings; rather, it will add an additional source of private capital to support their expansion.  
22 SoCalGas plans to outsource some of engineering, equipment supply, construction, and operation  
23 and maintenance of facilities required to deliver the proposed tariff service. Standard utility

1 competitive procurement practices will be used including programs supporting Diverse Business  
2 Enterprises. Private developers will be eligible for service under the Compression Services  
3 Tariff, providing them the opportunity to employ less of their own capital in each facility they  
4 construct and operate. Because the service will be offered as a tariff, the terms will remain  
5 transparent to market participants and ongoing Commission oversight can address any  
6 unforeseen adverse aspects of the proposed tariff.

## 7 **VI. CONCLUSION**

8 SoCalGas has developed an innovative tariff that benefits ratepayers, supports customers,  
9 improves the environment, and assists the State in meeting program and policy goals and  
10 mandates. Ratepayers benefit from the service while costs are recovered from participating tariff  
11 customers. SoCalGas' research demonstrates customer demand for the proposed service. The  
12 tariff helps to further expand the NGV and CHP markets thus providing greater opportunities for  
13 third party service providers. SoCalGas' accounting procedures and controls ensure proper  
14 allocation of full costs to tariff customers addressing concerns over an unfair cost advantage for  
15 the utility service relative to other products and services available to prospective customers of the  
16 Compression Services Tariff.

17 For all of the reasons stated above, SoCalGas encourages the Commission to act  
18 expeditiously and approve the Compression Services Tariff as proposed.

## 19 **VII. WITNESS QUALIFICATIONS**

20 My name is Jeffrey G. Reed. My business address is 8330 Century Park Court, San  
21 Diego, California. I am a shared service employee of the Southern California Gas Company and  
22 San Diego Gas & Electric Company and serve as Director of Emerging Technologies. I hold a  
23 bachelors degree in Mechanical and Environmental Engineering from the University of

1 California, Santa Barbara, a Masters Degree and doctorate in Mechanical Engineering from the  
2 University of California, Berkeley and a master's degree in management from Stanford  
3 University. At the Southern California Gas Company, I'm responsible for the Emerging  
4 Technology, Research Development and Demonstration and Low-Emission Vehicle programs  
5 and lead the Environmental Policy and Affairs group. In addition, I'm responsible for new  
6 program development related to these areas. In a prior assignment, I was responsible for  
7 strategic planning for the Southern California Gas Company and San Diego Gas & Electric.  
8 Prior to joining SoCalGas and SDG&E, I worked as a consultant to the energy industry leading  
9 business strategy and operational improvement initiatives. I also served as a director and officer  
10 in the gas turbine and steam turbine divisions of Asea Brown Boveri ("ABB") Power Generation  
11 in Switzerland with responsibilities in technology development, product design, marketing,  
12 business development and strategic planning. Prior to that, I held various positions in a defense  
13 research and development company. I have previously provided prepared testimony before the  
14 Commission.

15 This concludes my prepared testimony.

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