BEFORE THE PUBLIC UTILITIES COMMISSION

OF THE STATE OF CALIFORNIA

Order Instituting Rulemaking to Adopt Rules and Procedures Governing Commission-Regulated Natural Gas Pipelines and Facilities to Reduce Natural Gas Leakage Consistent with Senate Bill 1371.	)	R.15-01-008 (Filed January 15, 2015)

OPENING COMMENTS OF SOUTHERN CALIFORNIA GAS COMPANY (U 904 G) AND SAN DIEGO GAS & ELECTRIC COMPANY (U 902 G) ON ADMINISTRATIVE LAW JUDGE'S RULING ENTERING STAFF REPORT INTO RECORD AND SEEKING COMMENTS

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April 1, 2015

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Pursuant to the Administrative Law Judge's Ruling Entering Staff Report Into Record and Seeking Comments, dated March 18, 2015 (ALJ Ruling), Southern California Gas Company (SoCalGas) and San Diego Gas & Electric Company (SDG&E) submit the following opening comments.

I. Introduction and Summary

Senate Bill (SB) 1371 seeks to minimize hazardous leaks and reduce methane emissions in the transmission, distribution, and storage pipelines and facilities of natural gas utilities in California. As directed by SB 1371, the California Public Utilities Commission (CPUC or Commission) issued Rulemaking (R.) 15-01-008 in January 2015 to begin the stakeholder process to adopt rules and procedures to minimize natural gas leakage consistent with federal and state safety regulations and to reduce greenhouse gas (GHG) emissions consistent with the State's climate change goal.[1] On March 18, 2015, the ALJ Ruling entered into the record of this proceeding a report authored by the CPUC's Safety and Enforcement Division (SED) entitled "Survey of Natural Gas Leakage Abatement Best Practices," dated March 17, 2015 (Staff Report).[2] The Staff Report contains some preliminary observations, recommendations, and

[1] ALJ Ruling, at 1.
[2] *Id.* at 5 and Attachment 1.

conclusions regarding some of these best practices in the areas of definition of leaks, economic analysis of methane leak detection, leak grading and repair timelines, leak surveys, leak detection, leak prevention, information management, training, and records.

The ALJ Ruling requests that parties comment on the preliminary observations, recommendations, and conclusions in the Staff Report.[3] Although these observations are "preliminary," SoCalGas and SDG&E are very concerned that a key observation of the report is to misinterpret SB 1371's intent to reduce GHG emissions to meet the State's climate change goal as requiring a redefinition of the terms "leaks" and "hazardous." The Staff Report defines "leaks" to include all methane releases from the gas system into the atmosphere and for all leaks to be considered "hazardous" to persons, property, or the environment.[4] SoCalGas and SDG&E strongly support SB 1371's goal of methane emissions reductions. As explained below, we have already implemented many of the suggested best practices in the Staff Report and welcome a collaborative stakeholder process to explore innovative ways to do more. However, Staff's characterization of the terms "leak" and "hazardous" to describe an emission that is not impacting public safety would be inconsistent with federal and state safety regulations. Therefore, that definition as used in the Staff Report is inconsistent with SB 1371's direction that this Rulemaking adopt rules and procedures consistent with federal and state safety regulations. Further, the proposed definition of "leaks" would cause confusion when prioritizing resources and responding to emergency situations. Therefore, it would be beyond the scope of SB 1371 for the Commission to adopt Staff's proposed new definitions of "leak" and "hazardous" to apply to unintentional, non-hazardous releases and intentional releases of methane during operation and maintenance (O&M) of utilities' facilities. Instead, the Commission should follow SB 1371's direction and adopt rules and procedures in this proceeding that clearly distinguish between two goals:

(1) Minimize "leaks" defined as unintentional, hazardous and non-hazardous releases consistent with safety regulations under the U.S. Department of Transportation (DOT) Pipeline and Hazardous Materials Safety Administration (PHMSA) and the CPUC's draft General Order (GO) 112-F's leak grading system; and
(2) Reduce "emissions sources" defined as intentional or controlled releases due to system design or operationally necessary O&M activities consistent with the State's GHG climate change policy.

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[3] *Id.* at 2.
[4] *See* Staff Report, at 6.

Based on these definitions that more appropriately reflect the scope of SB 1371, SoCalGas and SDG&E agree with the Order Instituting Rulemaking (OIR) that this proceeding should focus on evaluating how to best manage and minimize both unintentional and intentional methane releases from the gas system, thus optimizing methane reductions.[5] We recommend the following path forward:

- Prioritize leaks and leak indications based on public safety implications by maintaining draft GO 112-F's grading system that takes into account several factors related to safety;
- Require an aggressive and affordable plan and timeline to address Grade 3 "non-hazardous leaks" either by repair or replacement of pipes with a greater likelihood of leakage so that GHG emissions from these leaks are eliminated and future emissions are prevented;
- Identify the system components and activities that result in "emissions sources" and mitigate these intentional, controlled releases from a continuous system improvement perspective;
- Avoid duplication of activities and reporting to various regulatory agencies;
- Fully vet any technologies, processes, and best practices adopted for application to be cost effective and the best value for ratepayers by demonstrating how they can improve safety and reliability while also reducing methane emissions; and
- Consider incentive mechanisms and funding sources for methane emissions and leak reduction activities developed via a process that considers the input of all interested parties, including the utilities, and which is supported by the evidentiary record.

SoCalGas and SDG&E look forward to working with the Commission through the workshops and comments during this proceeding to discuss promising new methods for surveys, detection, prevention, and best practices. We have already taken voluntary and preventative safety measures to reduce our methane emissions and plan to build upon this progress. We have initiated an aggressive modernization of our systems. SoCalGas eliminated cast iron, PVC, and copper pipe from its system. SDG&E eliminated all cast iron, copper, and unprotected steel. Additionally, SoCalGas has made great progress reducing our already low emissions through successful implementation of best management practices that have resulted in 812,741 tonnes of reductions of carbon dioxide equivalent (CO2e).

SoCalGas and SDG&E currently perform leak surveys according to federal and state standards. We are open to more frequent survey activities, if they would provide the best value to ratepayers and if provided appropriate resources to support those activities. Although the

[5] *See* OIR, at 8, n.4.

Staff Report suggests that a short-term payback between one to three years for methane emissions reduction activities is achievable,[6] our experience does not support such a time frame. SoCalGas and SDG&E look forward to discussing with stakeholders which procedures, technologies, and actions can cost effectively achieve the goals of SB 1371. We respectfully urge the Commission to reserve its judgment on the most viable, cost-effective technologies and practices until stakeholder input is further developed through the course of this proceeding.

II. The SB 1371 Stakeholder Process Should Afford Robust Participation to Sufficiently Respond to Staff's Recommendations and Report

The OIR contemplates multiple workshops and opportunities for stakeholder input through written comments.[7] It appears that the ALJ Ruling intends for this round of comments to provide a "preliminary" set of input for further discussion.[8] However, parties must first be provided the opportunity to propound discovery to understand the factual support for the recommendations in the Staff Report and the technologies discussed. SoCalGas and SDG&E respectfully reserve their right to further comment because they cannot sufficiently respond to the report without more of an opportunity to fully vet the factual assertions and technologies proposed in the Staff Report. SoCalGas and SDG&E offer their preliminary observations and recommendations in these opening comments and look forward to engaging in the OIR's anticipated stakeholder process to provide more meaningful participation in collaboration with Staff and other stakeholders.

III. As Directed by SB 1371, the Commission Need Not Redefine the Terms "Leak" and "Hazardous" and Revise the Grading System in a Manner that is Inconsistent With Existing Safety Regulations

The ALJ Ruling requests parties' comments on "SED's newly proposed definition of what constitutes a 'hazardous' and 'non-hazardous' methane leak in the context of SB 1371."[9] The Staff Report's recommendations regarding best practices rely on establishing a "new paradigm" based on Staff's redefinition of the terms "leak" and "hazardous" and a new grading system for the purpose of implementing SB 1371. Rather than redefine existing safety terms and

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6 Staff Report, at 26.
7 *See* OIR, at 10-11.
8 *See* ALJ Ruling, at 4.
9 *Id.* at 3.

grading beyond the scope of SB 1371, which may have unintended consequences for public safety, this proceeding should focus on meeting SB 1371's climate change goal by collaboratively exploring how to address the inventory of monitored "Grade 3 non-hazardous leaks." For intentional, controlled releases, SoCalGas and SDG&E suggest that the best approach would be to identify the system components and activities and mitigate these releases from a continuous system improvement perspective. SoCalGas and SDG&E look forward to providing further input on the timing to eliminate the Grade 3 non-hazardous leak inventory in the OIR stakeholder process.

A. Staff's Definitions and Grading Should Not Deviate from PHMSA Regulations and GO 112-F

Although Staff recognizes that "leak" is not defined in SB 1371, the Staff Report unnecessarily expands the definition so that "all gas leaks are now considered hazardous." Specifically, Staff defines a leak as "any release of methane from the gas system into the atmosphere, whether intentional or unintentional, whether hazardous or non-hazardous."[10] Staff acknowledges that its redefinitions and proposed leak grading system are not aligned with the federal PHMSA definition of a leak and associated safety regulations.[11] Staff justifies this by stating that "PHMSA regulations are concerned with physical safety, while SB 1371 is concerned with reducing methane emissions."[12] Staff is only partially correct. As noted in the OIR,[13] SB 1371 is purposefully clear in its direction that the terms "leaks" and "hazardous" be consistent with existing safety regulations. SB 1371 expresses two distinct purposes in addressing methane emissions:

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[10] Staff Report, at 6.

[11] *See id.* As explained in this section of SoCalGas and SDG&E's opening comments, SB 1371 states that the rules and procedures to be adopted must be consistent with specified federal regulations. The DOT has defined a system "leak" as "an unintentional escape of gas from the pipeline. A non-hazardous release that can be eliminated by lubrication, adjustment, or tightening, is not a leak." *See id.* (quoting PHSMA Gas Distribution Integrity Management Program Definition). The term "hazardous" is also defined by the DOT as "a leak that represents an existing or probable hazard to persons or property and requires immediate repair or continuous action until the conditions are no longer hazardous. A 'hazardous leak' which occurs aboveground or belowground is a leak and must be reported." Instructions For Completing Form PHMSA F 7100.1-1. Natural Gas Transmission and Distribution operators have reported data based on these definitions.

[12] Staff Report, at 7.

[13] *See, e.g.*, OIR, at 13 ("Ensuring that the § 975 adopted rules and procedures are not inconsistent with the regulations and procedures adopted by the state and federal entities that are relevant to the issues raised by SB 1371.").

(1) Minimize ***leaks as a hazard*** to be mitigated pursuant to paragraph (1) of subdivision (d) of Section 961, ***consistent with*** the requirements of Section 192.703(c) of Subpart M of Title 49 of the Code of Federal Regulations, the commission's General Order 112-E, and their successors.[14]
(2) While giving due consideration to the cost considerations of Section 977, ***reduce emissions*** of natural gas from those commission-regulated gas pipeline facilities that are intrastate transmission and distribution lines to the maximum extent feasible in order to advance the state's goals in reducing emissions of greenhouse gases pursuant to the California Global Warming Solutions Act of 2006 (Division 25.5 (commencing with Section 38500) of the Health and Safety Code).[15]

Thus, SB 1371 is concerned with *both* physical safety (by minimizing hazardous leaks) and climate change goals (by reducing methane emissions). This dual purpose, with safety as the top priority, should be reflected in all rules and procedures adopted by the Commission pursuant to SB 1371.[16] There is no reason to deviate from current definitions or be inconsistent with federal and state safety laws on how the Commission defines, grades, and/or classifies leaks to meet the safety and climate change goals of SB 1371. In fact, SB 1371 *requires* that the Commission adopt rules and procedures that are "consistent with" existing federal and state safety laws. Staff assumes that "SB 1371 necessitates changes to the leak grading . . . ,"[17] but there is no indication in the statute of an intent to deviate from existing safety definitions and grading.

If Staff's focus is to eliminate the non-hazardous leaks categorized as Grade 3 in the draft of GO 112-F by repair or replacement through this proceeding, the Commission need not adopt Staff's recommendation to change definitions to do so.[18] SoCalGas and SDG&E are fully

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[14] GO 112-E and its successors are incorporated in addition to the Federal Pipeline Safety Regulations, specifically, Title 49 of the Code of Federal Regulations (49 CFR), Parts 191, 192, 193, and 199, which also govern the Design, Construction, Testing, Operation, and Maintenance of Gas Piping Systems in the State of California. These rules do not supersede the Federal Pipeline Safety Regulations, but are supplements to the Federal Regulations. Absent modifications to 49 CFR by this General Order, the requirements and definitions within 49 CFR, Parts 191, 192, 193 and 199 prevail.

[15] SB 1371 (Statutes 2014, Chapter 525), codified in CAL. PUB. UTIL. CODE §§ 975(b)(1) and (b)(2) (emphasis added).

[16] *Id.* at § 975(b) ("With priority given to safety, reliability, and affordability of service, the commission shall adopt rules and procedures governing the operation, maintenance, repair, and replacement of those commission-regulated gas pipeline facilities that are intrastate transmission and distribution lines, as described in paragraphs (1) and (2) of subdivision (a) of Section 950, to achieve both of the following . . . .").

[17] Staff Report, at 12.

[18] *Id.* at 13 (recommending the update of GO 112-F's Grade 1 and 2 categories and elimination of Grade 3). As detailed on page 12 of the Staff Report, GO 112-F currently categorizes Grade 1 as

supportive of the Commission requiring an aggressive and affordable plan to address Grade 3 non-hazardous leaks either by repair or replacement so that the emissions from these leaks are eliminated. Indeed, SoCalGas has proposed such a plan in our General Rate Case (GRC), which is consistent with the intent of SB 1371. As previously noted, a timeline for the repair of Grade 3 leaks should also be established with stakeholder input. This solutions-oriented approach is a more effective use of resources through this proceeding than redefining existing safety terms and grading beyond the scope of what SB 1371 intended.

B. Consistent With the Intent of SB 1371, the Commission Should Maintain GO 112-F's Grading System for "Leaks" That are Unintentional, Hazardous and Non-Hazardous Releases and Include a New Category for "Emissions Sources" that are Intentional, Controlled Releases

Both PHMSA and the CPUC similarly categorize leaks in order to prioritize repairs based on public safety. Federal PHMSA regulations appropriately differentiate "hazardous" leaks from "non-hazardous" for the purpose of establishing system performance metrics for the Gas Distribution Integrity Management Program (DIMP) to facilitate replacement of pipelines from a safety perspective. The CPUC's GO 112-F builds upon PHMSA's safety-focused definitions by adopting a grading system to appropriately prioritize leaks for repair by the California gas utilities that is consistent with industry guidance for compliance with CFR 49 Part 191 and Part 192.[19] As contemplated by SB 1371,[20] GO 112-F's grading system should continue to guide repair timelines and need not be altered to meet the statute's goal of prioritizing the reduction of hazardous leaks. As mentioned herein, to the extent the Commission would like to focus on minimizing methane emissions from non-hazardous leaks, a plan and timeline can be devised and built upon the existing safety-related definitions for leaks. Thus, the term "leaks" should continue to only refer to unintentional methane emissions, categorized from a safety perspective

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"hazardous leaks" for immediate repair, Grade 2 as "non-hazardous leaks" for repair within 15 months, and Grade 3 as "non-hazardous leaks" for monitoring to ensure they do not get worse or become hazardous.

[19] This guidance is documented within ANSI GPTC Z380.1 *Guide for Gas Transmission and Distribution Piping Systems*.

[20] *See* SB 1371 (Statutes 2014, Chapter 525), codified in CAL. PUB. UTIL. CODE § 975(b)(1) ("Minimize leaks as a hazard to be mitigated . . . consistent with the requirements of . . . the commission's General Order 112-E, and their successors."). A draft decision to adopt GO 112-F was issued on January 23, 2015, which will supersede GO 112-E and is currently held to the May 7 CPUC Business Meeting for adoption.

as either hazardous or non-hazardous.[21] These unintentional releases are already appropriately defined from a safety perspective by the DOT and categorized in draft GO 112-F. Staff's definitions would unnecessarily require significant revisions to the comprehensive safety policies and training procedures vetted through broad industry involvement over decades of refinement, and incorporated through the course of drafting GO 112-F, which would have serious cost implications for customers (*e.g.*, additional equipment, labor, training, etc.).

If Staff's grading system is adopted, the existing categorization based on safety level would essentially be moot. Moreover, Staff's definition of all releases as hazardous, even though the DOT has determined that certain releases are non-hazardous, could impede the DOT's ability to appropriately regulate pipeline safety. Arguably, if all releases are defined as unsafe, whether hazardous or non-hazardous, this characterization could inhibit the DOT's established prioritization of system improvements based on public safety implications.

With respect to SB 1371's goal of reducing GHG emissions from intentional, non-hazardous releases that occur as a result of operation and maintenance (O&M) activities, these intentional or controlled releases can be addressed without redefining such releases as "leaks," which would not only cause confusion with, but more importantly, undermine SB 1371's safety goal and existing safety-related regulations. This category of emissions sources should be labeled as "Intentional Releases due to System Design and Operationally Necessary O&M Activities." In some cases, intentional releases are necessary to prevent a hazardous situation, such as preventing pressure buildup. SoCalGas and SDG&E's suggested path forward is to identify these system components and activities and mitigate these releases from a continuous system improvement perspective. In some cases, mitigating these emissions will require the development of new and novel approaches that will take time to develop. By focusing on the climate change policy goal for this category of emissions, this will facilitate the development of best practices for mitigation measures consistent with existing GHG laws and regulations.

In developing new rules and procedures to comply with SB 1371, the Commission should consider and maintain consistency with the current pipeline safety and GHG regulatory requirements, including those related to methane emissions inspection surveys and reporting

[21] Subcategories of unintentional, non-hazardous releases are Grade 2 and Grade 3 indications. Additional subcategories could be developed to address unintentional, minor releases that can be eliminated by lubrication, adjustment, or tightening while maintaining continuity of existing industry definitions and reporting.

requirements.[22] Appropriate consideration of these regulatory requirements would avoid duplication of activities and reporting to various agencies. This would in turn reduce the administrative burden on regulators and operators, streamline reporting processes, and optimize funding to be directed toward prioritization of hazardous leaks and value-added GHG emissions-reducing activities. It also avoids confusion with customers, organizations, and the general public who may be interested or have a stake in the climate change field.

C. Staff's Mischaracterization of the Terms "Leak" and "Hazardous" Would Cause Public Confusion and Shift the Commission's Focus Away From Prioritizing Safety in Leak Reduction

Staff's broad use of "hazardous" terminology to apply to *all* gas releases could have the unintended consequence of deprioritizing safety by causing confusion in an area that needs absolute clarity for responding to emergencies and acute safety conditions. Indeed, Staff's statement that "all gas leaks are now considered hazardous" creates confusion within the Staff Report itself because it is inconsistent with the report's own revised grading system that defines Grade 2 leaks as "non-hazardous."[23] By creating ambiguity regarding the terms "leak" and "hazardous" among safety and GHG regulations, the report contravenes the statute's clear intent to consider safety as the top priority in implementing SB 1371: "The Legislature has established that safety of the natural gas pipeline infrastructure in California is a priority for the Public Utilities Commission and gas corporations, and nothing in this article shall compromise or deprioritize safety as a top consideration."[24]

The mischaracterization that all sources of GHG emissions from utilities' gas systems are hazardous will distract from the Commission's and other stakeholders' focus on and need to prioritize public safety. These redefinitions are not necessary to implement SB 1371 and would induce unnecessary safety concerns amongst gas customers or laypersons without identifying and focusing on conditions that are truly hazardous to human health and safety. Defining all

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[22] For example, under 40 CFR Part 98, Subpart W, the California Air Resources Board (ARB) and the Environmental Protection Agency (EPA) require local distribution companies to report GHG emissions from various equipment leaks and vented sources. In parallel to state and federal requirements, local government agencies like South Coast Air Quality Management District (SCAQMD) have additional regulatory reporting requirements.

[23] *See* Staff Report, at 6, 12.

[24] SB 1371 (Statutes 2014, Chapter 525), Section 1(a).

releases as unsafe can only lead to inappropriately directing already limited resources away from public safety-related mitigation.

IV. The Staff Report Contains Insufficient Information to Adequately Assess Recommendations Regarding Leak Surveys, Detection, and Prevention

The ALJ Ruling requests parties' comments on Staff's recommendations regarding how to best have gas utilities "enlarge the scope of their leak surveys and procedures" and evaluate whether "existing (and newly proposed) practices are effective at reducing methane leaks."[25] As stakeholders in this proceeding, it is important to evaluate these issues against the improvements already achieved in the overall contribution of distribution systems to the methane inventory in California. In the 2014 ARB Inventory of GHG Emissions, oil and gas pipeline facilities make up only 6% of total methane emissions in California. In the EPA Inventory of U.S. Greenhouse Gas Emissions and Sinks 1990-2012 Report, distribution GHG emission trends are declining. At the same time, methane emissions from all four sectors are down a total of 17% from 1990 levels. In the report sponsored by Environmental Defense Fund (EDF) just released on March 31, 2015,[26] the Washington State University (WSU) researchers found that upgrades in metering and regulating stations, replacement of thousands of miles of cast iron and bare steel pipe with modern polyethylene (PE) plastic pipe, and better instruments for detecting pipeline leaks, have led to methane emissions that are from 36% to 70% lower than current EPA estimates when the data gathered for this study is combined with current pipeline miles and the numbers of facilities since 1990. These facts should help provide direction on where best to focus resources to efficiently gain the largest methane emissions reductions in the shortest elapsed time.

In evaluating existing and newly proposed practices against this positive trend, it is important to consider that SoCalGas and SDG&E currently perform effective leak surveys according to federal and state standards. We are supportive of enhancing the scope and frequency of leak survey activities, if they would provide the best value to ratepayers and if provided appropriate resources to support those activities. However, as explained above, the focus should not deviate from the well-established safety perspective built into the current leak

[25] ALJ Ruling, at 4.

[26] Brian K. Lamb et al., "Direct Measurement Show Decreasing Methane Emissions from Natural Gas Local Distribution Systems in the United States," ENVTL. SCI. & TECH, Mar. 31, 2015.

grading criteria and repair schedules. The climate change goal of SB 1371 can be met through additional prioritization criteria that could be integrated with current practice.

Additionally, the Commission should avoid prematurely favoring any particular leak survey, detection, and repair technologies until more fully evaluated pursuant to the OIR's stakeholder process. By highlighting certain technologies over others, the Staff Report may inadvertently convey that other viable, cost-effective technologies are less credible. More comprehensive and recent studies that are expected to be published this year will better inform sound policies and practices for addressing methane emissions.

A. Leak Surveys

SoCalGas and SDG&E agree in concept with Staff that the California natural gas industry can and should continue to build upon these improvements in an expeditious manner. However, the Staff Report does not specifically identify what portion of the system it considers not to be covered when it suggests that the scope and frequency of routine leak surveys should be updated "to include all gas infrastructure and equipment."[27] SoCalGas and SDG&E reaffirm their commitment to early detection and repair of system leaks and are certainly agreeable to enhancing the scope and frequency of leak surveys where the data supports there would be a corresponding benefit from the proposed action on emissions reduction over all other options. Nonetheless, the focus should not deviate from the well-established safety perspective built into the current leak grading criteria and repair schedules. As explained in Section III above, in order to avoid confusion and a loss of safety focus, the safety perspective of the leak grading system must remain intact. The climate change goal of SB 1371 can easily and clearly be met through additional prioritization criteria that could be integrated with current practice.

The cost and effectiveness of incremental increases in the frequency of inspection will vary by company based on current company practices and system make-up. One size will not fit all in this regard, and for that reason SoCalGas and SDG&E agree with establishing baseline metrics with improvement goals. One company may have different options and priorities from another to meet the GHG emission reduction goals based on its infrastructure, operations, and where it currently resides along the improvement path.

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[27] Staff Report, at 25.

SoCalGas and SDG&E have robust leak survey procedures that are comprehensive in scope from years of refinement through involvement in industry benchmarking of best practices, and integrated with state-of-the-art technologies. These statements are demonstrated by continuous investment in relevant research and development (R&D), which help drive improvements in procedures and equipment, and result in system leak rate performance over time.

SoCalGas has an established track record of system performance improvements from a system leakage perspective. These improvements were achieved in part by proactive replacement of aging non-state-of-the-art materials and system components, along with designing new systems with methane emissions prevention as a design goal encouraged through involvement in the EPA's Natural Gas STAR program. Over two decades ago, SoCalGas became a founding member of the Natural Gas STAR program, a voluntary program that encourages companies to implement best management practices to reduce methane emissions. SoCalGas has made significant improvements since then in the areas of transmission and storage, removing poor performing system materials such as cast iron, PVC, and copper in the distribution system, as well as eliminating high bleed equipment, while also:

- Upgrading major meter and regulator stations to eliminate passive venting in designs of equipment;
- Developing innovative solutions through technology for reducing methane emissions, such as optical, remote, and mobile methane detectors;
- Decreasing venting and equipment run times;
- Implementing lower pipeline pressure or bypassing gas flow before venting pipe for maintenance, repair, or replacement purposes;
- Replacing non-state-of-the-art distribution pipe materials;
- Replacing high bleed pneumatic instrumentation with low bleed;
- Replacing less efficient equipment (*e.g.*, replace internal combustion engine with turbines); and
- Maintaining a Direct Inspection and Maintenance Program.

In comparison, SDG&E has no storage facilities and less transmission mileage and has also made significant strides over the years by eliminating cast iron and unprotected steel. Thus, SDG&E has implemented the approach to schedule all leak indications for repair as they are discovered. This continuous system improvement approach is consistent with many other GHG emissions reduction initiatives, including the State's overall objectives for methane emissions reductions.

In considering best management practices, many company-specific factors must be considered when developing the details of any change to new procedures. Even the selection of state-of-the-art technologies and tools must take into account a holistic view of the business systems into which that device must integrate. The PICARRO Surveyor® system and Pacific Gas and Electric Company's (PG&E's) "Super Crew" method highlighted in the study is an excellent example. SoCalGas utilizes the PICARRO Surveyor®, and is evaluating the technology to see how it can provide value, and complement our approach to verify the integrity of our system. As part of the extensive evaluation of this technology to date, SoCalGas has found that a large percentage (roughly 40%) of what is reported as a "leak" by this technology is not, in fact, an emission from our system.[28] This problem with false positive measurements drives a significant amount of non-value-added labor that must be considered in any cost-benefit analysis. The Staff Report's rate-of-survey comparison of 500 services/hour versus 10-11 services/hour, and leak detection rate comparison of 32 leaks/hour versus 0.4 leak/hour could be misconstrued because the units are not comparable from a resource demand and cost basis.[29] Normalizing these two sets of numbers yields roughly 4 and 6.4 leaks/100 services respectively. However, to properly compare, we understand the Super-Crew approach to using PICARRO requires a large support staff, plus additional follow-up by separate employees to identify the specific location of and grade the leaks. Additionally, there is a cost associated with the PICARRO technology, plus other associated operating expenses, that are not required for conventional leak surveys. A more accurate treatment would be to compare the total cost to perform the leak survey and a breakdown of the costs involved between the two approaches.

The PICARRO technology is also not a stand-alone replacement for a traditional leak survey. The locations where the technology recorded peak methane measurements must be confirmed using available leak detection technology through a blind search protocol of the general area to determine if any leaks are detectable on the system. These technologies do not currently have the capability to effectively differentiate the emission source from an atmospheric measurement taken at the vehicle location in the street. This is due to the many other common sources of methane in the atmosphere such as sewer gas, agriculture, and other man-made emission sources or naturally occurring methane seeps that are unique to Southern California.

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[28] This may simply be a result of that particular technology's inherent limitations that may not be unique to PICARRO's proprietary technology.

[29] Staff Report, at 16.

To achieve differentiation, either a new technological breakthrough will be needed or a supplemental tool that can trace and track down the atmospheric methane peak reading (in the parts per billion sensitivity range) from the vehicle monitoring location in the street to the emission source itself. Once an actual leak is located in the area, one still cannot definitively conclude that the emission previously detected was from that leak until the leak is repaired and the area is re-inspected. Even then, it may be hard to determine due to the possibility of changing conditions, and the fact that the actual emission source detected could have been as much as 600 feet away. In a typical residential area with a grid of Mains and Services supplying every home in the area, a distance of 600 feet can cover multiple streets, cross multiple Mains, and encompass many Services. Searching all of that territory is not practical in that type of environment, which is the operating environment for most gas systems. Atmospheric methane readings in the street are ephemeral and subject to many variables that are not yet fully understood and able to be modeled by these technologies. Further development of these technologies is needed. For some companies, these top-down methane measurement approaches may not be cost-effective tools to integrate into the overall leak survey process. For some companies, other incremental uses of these same tools may find a place, such as emergency response, area odor investigations, verification of leak repair, and remediation of residual gas.

There are several efforts currently underway to provide greater transparency on the emission factors that contribute to the overall methane leakage rate that should also be considered in this proceeding. The EDF is conducting a series of studies on each area of the natural gas supply chain to develop a more science-based estimate of the methane leakage rate for the natural gas system. In these EDF studies, methane emissions are actually and directly measured at the sources on the ground, rather than estimated by applying an emission factor to a component count. Consequently, the results from these EDF studies are much better substantiated than in prior studies due to larger sample populations and technology improvements. As part of this series, the University of Texas conducted a study on emissions from natural gas production, released in 2013. A second phase of the project will focus on pneumatics. Additional studies on gathering and processing, transmission and storage, local distribution, and transportation are expected to be published this month and throughout 2015. The findings from these more comprehensive and recent studies will better inform sound policies

for addressing methane emissions. Consideration of these studies should be made in the future evaluation of best leak detection and repair technologies pursuant to SB 1371.

B. Leak Detection

Appendix A of the Staff Report identifies many methane measurement and leak detection technologies along with leak survey tools, and provides information that is very generalized and obtained from publically available sources. As a result, some of the information is for outdated technologies, and in some cases technically inaccurate or incomplete. SoCalGas and SDG&E encourage the engagement and input from key stakeholders in vetting these technologies for potential adoption. Further input through multiple workshops and comments is particularly important from the utilities that have a significant level of expertise and technological understanding of the tools in use and that are involved with many of the tools under development. In Attachment 1 to these comments, SoCalGas and SDG&E offer some preliminary observations and corrections regarding the Staff Report's technologies in Appendix A. Additionally, we have sorted these items into four general categories as follows:

- Top Down Methane Emissions Detection;
- Leak Survey Technologies;
- Leak Pinpointing Technologies; and
- Other Methane Detection/Abatement Technologies.

We have also identified which line items qualify as "state-of-the-art." For any of these line items to qualify as a "best practice," more detail would be needed in regard to the application and how it is integrated into policies and procedures.

As best management practices and maximum technologically feasible considerations are reviewed through this proceeding, it is highly recommended that the Commission take advantage of the work by the Gas Technology Institute (GTI), the Operations Technology Development (OTD) organization, and the NYSEARCH organization. GTI, OTD, and NYSEARCH are implementing a number of studies with the goal of improving GHG emission factors for natural gas transmission, storage, and distribution infrastructure and for quantifying emissions. Improved methodologies and emissions data will increase the level of accuracy and improve compliance with developing regulations. Studies include field measurement programs to improve uncertainties for GHG emission factors for distribution sources to ultimately facilitate

the incorporation of these methodologies and strategies into the local distribution company's practices.

As the Commission considers and evaluates the appropriate costs associated with identifying and prioritizing leak repairs, it is important to adequately vet with stakeholders the serious consideration of inspection frequency, what methane indication criteria are used to define an actionable "leak indication," and repair requirements. This dialogue is particularly vital because inspection intervals will vary by pipeline and equipment type; a strategy will be needed to optimize these intervals; there are diminishing returns in tracking down extremely low level methane indications; and not all parts of the system that may leak have the same system repair needs. Of particular importance is prioritizing the replacement of system pipe and components considered to be made up of "vintage" or "non-state-of-the-art" materials that are more likely to emit or leak in the future.

C. Leak/Flux Rate

A key objective in achieving the goal of GHG emissions reduction and prioritization of leak repair from a climate change perspective is the ability to quantify the amount of methane being emitted from a system leak. The industry has developed and used several different technologies that have been vetted and validated through peer review studies. However, the industry has recognized that because these technologies are expensive and time consuming to use, they are not practical and not very accurate for the purpose of categorizing the flux rates of leaks. There are currently a number of technology solutions being investigated and developed by industry research groups. SoCalGas has in recent years funded 20 projects in this area, and we expect to have viable solutions in pilot implementations by sometime next year. In the interim, SoCalGas and SDG&E recommend that attention and resources should be focused on reducing the time and costs to replace or repair pipes. This approach would achieve immediate improvements in system performance and GHG emissions reductions on a longer-term basis, compared to non-strategic leak repairs. It would also contribute to operational efficiencies and reduce operational costs.

V. Cost/Cost Impact/Cost Effectiveness

The Commission through this OIR and as required by SB 1371[30] must take into account cost considerations and best value for ratepayers with the actions that will be ordered. It is important that the new protocols and procedures that will incorporate new technologies are also proven to be cost effective and practical. SoCalGas and SDG&E participate in numerous R&D projects and look forward to sharing our experience in addition to learning of emerging technologies that will support the reduction of methane in a cost-effective manner. These potential new technologies should be fully vetted for application to ensure the best value for ratepayers. Although several of the leak detection technologies identified in Appendix A to the Staff Report are already being used by SoCalGas and SDG&E, several others listed have either not yet been proven in the United States, or are not commercially available anywhere. For example, the cost effectiveness of mobile mapping of atmospheric methane levels has not yet matured to the point where it is capable of replacing "boots on the ground" leakage surveys. Indeed, mobile methane mapping still requires the follow-up use of traditional surveying and assessment techniques to verify whether the methane is from the utility's system, to classify the severity of the leak, and to schedule the leak's repair and/or follow-up.

SoCalGas and SDG&E are supportive of R&D aimed at reducing methane emissions. In SoCalGas' most recently filed GRC application, it requested funding to support research to quantify methane emissions from underground pipelines by conducting field validation testing of the methodology in partnership with OTD and NYSEARCH and measure fugitive methane emissions from leaking PE pipelines. It cannot be overstated how necessary R&D is for identifying and testing new technologies or methods that can be successfully implemented to improve safety and reliability while also reducing methane emissions. Although some of the technologies listed in Appendix A to the Staff Report are not ripe for practical application at this time, it is important, as our own experience has shown, to test and evaluate these new technologies for their potential benefits of improving safety while reducing methane for the purposes of this OIR and SB 1371.

[30] CAL. PUB. UTIL. CODE §§ 975 and 977.

VI. Cost Recovery and Incentive Mechanisms

As contemplated in Public Utilities Code (PUC) Section 977,[31] there will be a cost to implement new procedures and actions to reduce leaks and methane emissions. This proceeding will result in additional rules and procedures governing the operation, maintenance, repair, and replacement of Commission-regulated gas pipeline facilities. Implementing these new rules and procedures will require additional resources and an expanded workforce. The Commission will need to determine the appropriate cost effectiveness of the actions ordered in this OIR in addition to the methane emission reductions that can be achieved. We encourage the Commission to take a holistic view of statewide GHG emissions and consider the ability of the natural gas system to receive methane gas from other sectors. Since the State's GHG policies will result in costs to ratepayers, consideration should be given to directing those costs to sectors that have larger emissions.

The costs required to implement new changes pursuant to SB 1371 are not currently included in rates. Actions that will be implemented in this Rulemaking will be above and beyond what is included in SoCalGas' and SDG&E's recently filed GRC and augment efforts identified in testimony to reduce the backlog of non-hazardous leaks.[32] SoCalGas and SDG&E do support expanding activities to reduce methane emissions; however, resources will be needed to implement revisions which will require cost recovery. For example, as noted in our comments on the draft decision on GO 112-F:

> [I]mplementing twice annual, instrumented leak surveys for all class locations will require modifications to our scheduling, data collection, and work process systems. Additionally, equipment, vehicles, and instruments will need to be procured, and new personnel hired and trained . . . . Performing the survey twice a year doubles the cost. These estimates are only partial cost estimates, but these aspects alone would increase costs approximately $1.061 million per year above the increase requested in the GRC.[33]

Although the Staff Report believes a short-term payback between one to three years for various actions to reduce methane emissions is achievable,[34] the utilities' experience does not

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[31] CAL. PUB. UTIL. CODE § 977 (requiring various cost considerations to achieve "best value for ratepayers").

[32] Application (A.) 14-11-004, Revised Testimony of Frank Ayala, at 9.

[33] Comments of SoCalGas and SDG&E on Proposed Decision Adopting Revised General Order 112-F, at 3-4.

[34] Staff Report, at 26.

support such a time frame. SoCalGas and SDG&E look forward to discussing with stakeholders which procedures, technologies, and actions can cost effectively achieve the goals of SB 1371 and the OIR, which include the appropriate cost recovery for implementation.

The report recommends that financial incentives be aligned for both customers and shareholders to eliminate both intentional and unintentional methane leaks from the gas system and after assessing ratemaking implications for performance-based incentives.[35] SoCalGas and SDG&E are supportive of developing incentive mechanisms that support the goals of this proceeding and SB 1371. Strategically-designed incentive mechanisms can provide strong support for our mission to provide safe, reliable, and reasonable cost service to our customers. Any incentive mechanism relating to methane emissions and leak reduction should be developed via a process that considers the input of all interested parties, including the utilities, and which is supported by the evidentiary record.

SoCalGas and SDG&E have also recently suggested in reply comments to the Natural Gas GHG OIR that the SB 1371 OIR might be one of many venues to consider clean energy proposals aimed at reducing GHG emissions.[36] The Commission should consider including in the scope of this proceeding any proposals for leak reduction that could be funded through GHG allowance revenues made available for clean energy projects for which funding was not requested in the GRC.

SoCalGas and SDG&E are concerned that the Staff Report assumes that the utilities have no financial incentive to eliminate traditionally non-hazardous leaks, and that "lost and unaccounted for gas" (LUAF) is just the cost of doing business.[37] LUAF is an accounting concept; it is not comparable to the physical flow of gas through the system. The portion of LUAF estimated for SoCalGas/SDG&E's natural gas lost to atmosphere is less than 1/10 of 1% of the total natural gas volumes delivered. Additionally, all natural gas used for company purposes is not part of LUAF. This proceeding will provide an opportunity for all stakeholders to better understand the operations of natural gas operators and work through misconceptions (*e.g.*, LUAF) so that this proceeding will result in actions that will reduce methane emissions consistent with SB 1371.

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35 *Id.* at 24.

36 R.14-03-003, Reply Comments of SoCalGas and SDG&E on Phase Two Issues, dated Mar. 13, 2015, at 5.

37 Staff Report, at 8.

As explained in Section IV.A above, SoCalGas and SDG&E are proactive operators implementing processes and best practices that do reduce costs to ratepayers. For example, SoCalGas and SDG&E have partnered with EDF, the American Gas Association, and other utilities across the nation on several studies to identify and reduce GHG emissions. Additionally, SoCalGas has implemented all the Natural Gas STAR best management practices and SDG&E has also made significant improvements in this area.

VII. The Commission Should Limit the Utilities' May 15, 2015 Reports to the Items Listed in SB 1371

The ALJ Ruling requests parties' comments on the specific requirements for the annual reports required by SB 1371.[38] The OIR requires the utilities to file the first annual report by May 15, 2015, which should include the list of data specified in SB 1371.[39] Because of the short time frame to gather data for this first report, the utilities should only provide the set of data listed in the OIR. Leak data can be provided in May for unintentional releases pursuant to existing safety regulations. However, some historical, GHG emissions-related data for intentional or controlled releases are not available, unless similar information is already reported to other regulatory agencies. SoCalGas and SDG&E look forward to working with other stakeholders to develop useful ways to track and report such GHG emissions data for future annual reports to the extent it is relevant for the purpose of SB 1371's climate change policy goal. For all SB 1371 reporting, terminology and reported data should be consistent with and avoid duplication of existing safety and GHG reporting requirements.

Respectfully submitted,

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April 1, 2015

[38] ALJ Ruling, at 5.
[39] OIR, at 9.

ATTACHMENT 1

SoCalGas and SDG&E's Observations Regarding Staff Report's Appendix A

Appendix A - Natural Gas Leakage Abatement Best Practices

Name	Status	Advantages	Disadvantages	Utility Company	Location
Top Down Methane Emissions Detection					
Picarro	State-of-the-Art	From our experience and perspecitve the Picarro Surveyor offers the following advantages and disadvantages: The Picarro surveyor enables operators to measure the atmospheric methane levels in areas where pipelines are located and automatically map and display results of unusual methane level locations in real-time on a secure web browser. The system is capable of performing an isotopic ratio analysis of the methane in atmosphere under some limited conditions where the contration at the vehicle location is sufficient. This analysis may be able to distinguish between natural gas and other types of methane (such as biogenic sources) if the composition of the system gas in that area is sufficiently know. All data is transferred, stored, processed and mapped in the Picarro Processing Platform (P-Cubed). Picarro is able to provide an audit trail of the areas investigated.	Results can be affected by weather, especially wind. Night time operation and max speed of 40MPH recommended, and for best results 20 MPH is recommended. System cannot distinguish source of methane or provide information needed to grade leaks. Isotopic ratio analysis limited to site concentration limits of 3.2ppm minimum methane and vehicle must be parked in the methane plume for approximately 10 minutes. System cannot quantify methane emissions.	PG&E, SoCalGas	
CHARM® – CH4 Air Remote Monitoring, i.e. helicopter-borne infrared laser-based (LIDAR) remote gas detection system	State-of-the-Art				
Aerial Leak Surveys Using Drones	State-of-the-Art			SoCalGas/SDG&E - SDG&E is the first utility in th country to get permission to test the use of drones and train the crews to operate them.	
Patrols Using Helicopters, Fixed Wing Aircraft, Cars, Boats, On Foot or any combination of these.	Not Commercially Available				
Portable Spectrometer	State-of-the-Art			PG&E, SoCalGas	

Appendix A - Natural Gas Leakage Abatement Best Practices

Name	Status	Advantages	Disadvantages	Utility Company	Location
Leak Detection Technologies - used during Leak Survey					
Heath Detecto Pak Infrared (DP-IR)	State-of-the-Art			PG&E, Alpine, ~~Sempra~~, SoCalGas/SDG&E, West Coast Gas	
Remote Methane Leak Detector	State-of-the-Art		~~Open path detectors suffer downtime from anything that blocks the path of the beam, such as people, vehicles or thick fog. (Source: Wikipedia)~~ Line of sight for open-path detectors may be obstructed by objects.	Consumers Energy - Michigan, PG&E, ~~Sempra~~, SoCalGas/SDG&E, Dominion East - Ohio	
Laser Methane Detector by Gazomat	State-of-the-Art			Dominion East - Ohio, ~~Sempra~~, SoCalGas	
Gas Rover by Bascom-Turner	Older Technology				
Portable Flame Ionization Detector	Older technology			Consumers Energy-Michigan, PG&E, Central Valley Storage, Gill Ranch Storage, Lodi Gas Storage, Dominion East-Ohio, Southern California Edison (SCE), Southwest Gas, SDG&E	
Optical Methane Detector	State-of-the-Art		This statement is too general, does not apply to the OMD. Open path detectors suffer downtime from anything that blocks the path of the beam, such as people, vehicles or thick fog. (Source: Wikipedia)	Consumers Energy, PG&E, SoCalGas/SDG&E	
Tunable Laser Spectrometer	Not Commercially Available			PG&E, SoCalGas	

Appendix A - Natural Gas Leakage Abatement Best Practices

Name	Status	Advantages	Disadvantages	Utility Company	Location
Used for Leak Pinpointing & Gas Detection					
GT Instrument by GMI	Older Technology			~~Sempra~~, SoCalGas/SDG&E	
Combustion Gas Indicator (CGI)	Older Technology				
Combustible Gas Indicator - Gascope Model 60 by MSA	Obsolete			~~Sempra~~, SoCalGas	
Gas Camera	State-of-the-Art				
EyeCGas by Opgal	State-of-the-Art				
GasFindIR by FLIR	State-of-the-Art				
Hyperspectral Imaging Cameras (Rebellion Photonics)	State-of-the-Art				
Leakator 10 by Bacharach	Older Technology			~~Sempra~~, SoCalGas/SDG&E	
Other Methane & Leak Detection Technologies					
Canines (Dogs)	Unknown				
Canines (Dogs)	Unknown				
Canines (Dogs)	Unknown				
Canines (Dogs)	Unknown				
Gas Insertion Sensor System	State-of-the-Art				
Smart Ball	Not Commercially Available		Cannot be used in pipes below 4" in diameter. (Source: Technical Toolboxes Inc.) Must have a launching and retrieval connections on the pipeline.		
Robots	Not Commercially Available				
Smart Pipeline Network - Pipe & Repair Sensor System	Not Commercially Available				