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Submitted to: dmehl@arb.ca.gov, mtollstrup@arb.ca.gov and
http://www.arb.ca.gov/lispub/comm2/bcsubform.php?listname=slcpstrategy-ws&comm_period=1

RE: Comments by Southern California Gas Company and San Diego Gas and Electric on the Air Resources Board's Short-Lived Climate Pollutant Reduction Strategy Concept Paper, May 7, 2015

Dear Messers. Mehl and Tollstrup:

Southern California Gas Company and San Diego Gas & Electric ("SoCalGas and SDG&E") appreciate the opportunity to submit these written comments pertaining to the California Air Resources Board's ("ARB") Short-Lived Climate Pollutant ("SLCP") Strategy Concept Paper ("Concept Paper"), published for public review on May 7, 2015. SoCalGas and SDG&E strongly support a vision of a low-carbon future including deployment of "Power to Gas" technologies, greater development of bio-methane supplies, and the deployment of heavy duty natural gas engines for the transportation sector all of which can significantly reduce greenhouse gas ("GHG") emissions. We understand the importance of reducing direct emissions of methane from the natural gas and renewable natural supply chains. We have several thoughts to share with you about the Concept Paper, as well as ideas regarding effective mitigation of unintentional methane releases attributable to natural gas distribution and transmission. We look forward to continuing healthy dialogue with ARB staff as this SLCP Reduction Strategy moves forward this year.

1. Over-Regulation of Methane Emissions

We are concerned that ARB is moving forward with this effort to regulate SLCPs, including methane, while the California Public Utilities Commission ("PUC") is already accounting for the

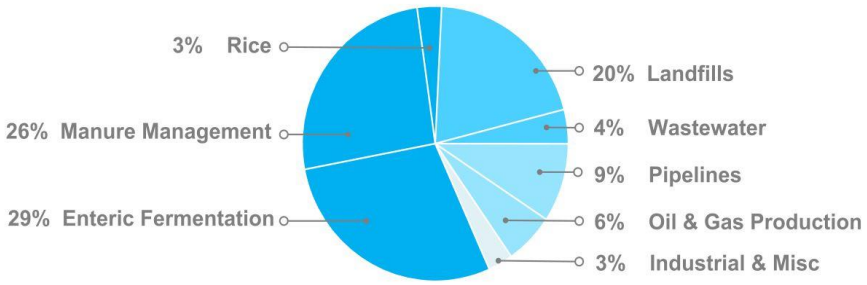
state's natural gas emissions under SB 1371 (Leno, 2014). We detail our compliance with SB 1371 and PUC's rulemaking requirements below. In light of the reporting and other requirements put on SoCalGas and SDG&E and all utilities under 1371, we are not sure if and how ARB regulations would add value to the efforts already ongoing to account for and reduce natural gas emissions. ARB should consider the information it is receiving as a result of PUC's rulemaking and how it fits into the development of its own SLCP strategy.

Under Rulemaking 15-01-008 to implement SB 1371, SoCalGas and SDG&E along with other California natural gas utilities were required to report our sources of natural gas emissions for 2013 and 2014 to the PUC. ARB also received this report along with the corresponding response to the PUC's data request for additional information. SB 1371 also requires annual reporting of abatement and mitigation plans for reducing the system-wide leak rate. We are already in the process of developing suggestions for cost-effective abatement and mitigation strategies and technology development plans for each reported source of emissions, which will be considered in the Rulemaking and implemented in due course. SoCalGas and SDG&E believe our obligations under SB 1371 will clearly and measurably reduce methane emissions from sources under our responsibility. Since ARB is an active participant in this proceeding, we expect the final PUC rules and procedures regarding reporting and emissions mitigation measures to be designed to fully support ARB as it moves forward with the SLCP Reduction Strategy.

2. New California Methane Source Calculations

The Concept Paper, for the first time in public, uses the following chart to account for methane sources in California. This accuonting, which has also been shared with the California Energy Commission (June 1, 2015) and possibly other decision makers:

Figure 2 (Concept Paper page 17): California's 2013 Methane Emission Sources



According to this new methane emissions chart, emissions from pipelines are 9% of total methane emission in California, while oil and gas production contributes 6%. These emissions are significant increases from previous percentages, which were 6% from pipelines and 3% from oil and gas production in the 2012 Methane Emissions inventory. (ARB, *Reducing Short-lived Climate Pollutants*, September 2014, page 5, http://arb.ca.gov/cc/shortlived/slcp_booklet.pdf.)

Most categories remain unchanged, yet the attribution of California methane to "Pipelines" and "Oil and Gas" categories are increased by 50% and 100%, respectively, in one year. As a result, SoCalGas and SDG&E specifically request that ARB share with the public the documents and

calculations that ARB relied upon to significantly change its methane inventory with respect to the 2013 attribution of emissions coming from these sources.

3. Differentiation Between Methane Emissions From Oil Production and Natural Gas

It is essential for ARB staff to differentiate clearly between methane released through the production of crude oil in California, and methane released through natural gas production and distribution. As confirmed by the Division of Oil, Gas, and Geothermal Resources (DOGGR) presentation at the Fugitive Emissions Workshop hosted by the California Energy Commission (June 1, 2015), **there is virtually no current or historical gas production in California**. Historically, all gas produced by oil production was considered a waste product of the oil business because it was not of useable quality. Prior to any air quality regulations, this waste gas was either directly vented to the atmosphere or combusted in flares, resulting in NOx emissions to the environment. By capturing the waste gas from oil producers, natural gas utilities reduced both GHG and NOx emissions in California. Natural gas utilities now must take the associated gas from these local producers into their system if they meet quality specifications. If the producer does not process the associated gas so that it meets PUC quality specifications, then the utilities can literally shut-in oil production because the producers are no longer allowed to flare or release the gas to the atmosphere due to air quality regulations; otherwise we are obligated to take the gas. The ratepayers of the utilities should not be burdened with the responsibility of methane leakage from oil production.

As a result of this regulatory history, SoCalGas and SDG&E propose the following: If methane emissions associated with any California oil production are counted as part of the natural gas utility value chain, then California gas utilities should also receive a credit for the full volume of gas produced by the oil producers and taken by the gas utility. In the alternative, emissions along the associated gas value chain should be counted as part of the oil/diesel/gasoline value chain, and NOT the natural gas value chain. As a fundamental principle, the natural gas industry cannot be held responsible for methane emissions released during production and processing of oil, as we do not have any direct control over oil company operations and safety protocol. Thus, it is important for ARB staff to (1) recognize the historic treatment of methane emissions related to oil operations and (2) appropriately allocate those emissions to the correct source of emissions.

4. New Methane Emission Studies Should Be Considered By ARB in the SLCP Process

Another reason for our questioning of ARB's new 2013 methane data is the number of new studies specifically examining the amount of methane released to the atmosphere from natural gas production, transmission and distribution. Over the past few years, the Environmental Defense Fund ("EDF") has partnered with a number of academic institutions to produce studies of methane emissions from various aspects of oil and natural gas production. At least two of these studies are relevant and material to the analysis in the Concept Paper. Specifically, Dr. David Allen of the University of Texas conducted an in-depth study of methane emissions that are directly attributable to natural gas production. Although his research was based out of state, because virtually no actual natural gas production occurs in California, we believe his findings are useful for ARB staff to review and evaluate in light of concerns with SLCP. For example, Dr. Allen's study found that emissions from well completions were <u>lower than anticipated</u> from

federal Environmental Protection Agency ("EPA") estimates. At the same time, methane emissions from pneumatic equipment were higher than EPA estimates. This distinction is significant to California because, as the state does not have any pneumatic equipment currently operating to produce natural gas; therefore, this is an issue that ARB can lay to rest.

In addition, and perhaps more directly relevant, is the study by Dr. Brian Lamb of Washington State University regarding emissions from Local Distribution Companies ("LDC") operations, including California LDC operations. His study, released in late March of this year, specifically revisited 13 locations evaluated for methane emissions by the EPA in the early 1990s, including 230 underground pipeline leaks and 229 metering and regulating facilities.

> [T]he report found, the amount of methane being released is 36 percent to 70 percent less than estimates published in 2011 by the federal Environmental Protection Agency. Those earlier estimates were based on data from the 1990s. The researchers suggested that **the reduction was largely a result of equipment upgrades, including replacement of leaky old cast-iron or unprotected steel pipe**. Three leaks produced half of the total measured emissions from pipelines.
>
> **The stemming of methane emissions could also be attributed to improved leak detection and maintenance**. Metering and regulating stations checked for the earlier Environmental Protection Agency estimates and checked again for the current study experienced as much as **a 90 percent reduction in leaks** — "very dramatic changes," said Brian Lamb, lead author of the report. (New York Times, "Gas Utilities Reduce Leaks of Methane, Study Finds," John Schwartz, March 31, 2015, emphases added.)

This study provides the newest, most accurate and comprehensive data and emission factors for underground pipeline leaks and meter and regulator stations based on nation-wide sampling. However, based on this study, there were significant regional differences in system performance due mainly to differences in pipeline materials pervasive in the systems. The western region systems were found to emit much less than their east coast counterparts because of they have more plastic and no cast-iron. Also, SoCalGas and SDG&E were early participators in the EPA Natural Gas STAR program and implemented many of the best management practices such as replacing high bleed pneumatic devices with low- or no-bleed. Indeed, SoCalGas and SDG&E eliminated their cast-iron pipe over two decades ago. Consequently, LDCs perform a great deal of system inspections and maintenance; they have a vast amount of system performance data that may provide a better snap shot of emissions based on their current integrity management programs.

We have attached both studies to our comments and include them by reference. ARB must consider these new data sets and studies to inform the scientific basis of its SLCP findings as well as its climate change decision making. Using old data, simply because it is well-sourced (i.e., from the federal EPA), does not necessarily make it the most reliable and appropriate for purposes of 21st Century policy making. We urge ARB to review and consider new sources of data that may lead to more accurate measurements of pollutants and GHGs, which, in turn, will result in the most effective forms of mitigating and reducing such emissions.

5. ARB's Analysis Needs to Include Ground-Level Detection Data

We recognize that scientific information on air pollution and greenhouse gas emissions and how they are measured is an ongoing discussion in the atmospheric science and regulatory communities worldwide. At the same time, it is essential that ARB and others utilize the most accurate data to measure GHGs, including methane. Ambient measurement and differentiation is one method of emission measurement but it should not be the only one upon which ARB relies. Ground-level detection is also important to identify and confirm leakage from the natural gas system.

In our experience, there is about a 50% correlation between the ambient measurement of methane and "boots on the ground" detection of methane leakage from the SoCalGas and SDG&E natural gas systems. Our participation with the Colorado State University ("CSU")/EDF methane emission mapping effort has delivered similar results confirming this weak correlation. While driving a vehicle equipped with methane monitors through various cities in Southern California, the CSU/EDF utilized ambient measurement with an algorithm in which they have high confidence because it purported to weed out many false positives. This ambient monitoring method, unfortunately, yielded only a 50-60% correlation to actual leaks in the SoCalGas and SDG&E system. Additionally, the CSU/EDF mapping exercise did not find numerous known leaks. Clearly, more work needs to be done to improve the correlation between ambient measurement techniques and ground-level detection. Further, ambient measurement must do a better job of distinguishing between (1) petro-genic methane sources and biogenic methane sources and (2) among different petro-genic sources.

Screening tools aimed at early detection and identification of gross emissions sources could be effective at significantly and quickly reducing methane emissions. Current identification tools using isotopic or methane/ethane ratios to differentiate biogenic from petro-genic sources are not effective in the Los Angeles area because there are many natural seepages that are both biogenic and petro-genic. As discussed in the DOGGR presentation at the Fugitive Emissions Workshop, there are thousands of abandoned wells in the Greater Los Angeles area. Also, SoCalGas has local gas suppliers that may be producing biogenic gas and introducing it into the system from where the gas blends and commingles with gas from traditional production as well as new sources such as wastewater treatment facilities. Furthermore, SoCalGas and SDG&E will continue to increase the number of bio-methane and other carbon neutral or renewable sources in its supply mix making fingerprinting these sources even more difficult. As a result, SoCalGas and SDG&E recommend work be done to develop detection methods involving the distinct "odorant" used in natural gas (Tetrahydrothiophene or Tertiary Butyl Mercaptan) as a means to quickly identify whether the source of methane is coming from the LDC's or utility's pipeline system, versus the gas producer's facility. In the interim, most of SoCalGas and SDG&E's current supplies can be successfully differentiated from local seepages by the use of helium as a fingerprinting tool. Ultimately, any analytical tool that is to distinguish natural gas from the local utility's system would have to be able to test a grab sample from the system for comparison with the field gas in question to make a definitive assessment on whether the methane detected is from the LDC or not.

6. Comments Regarding Waste Stream and Dairy Sources of Methane

SoCalGas and SDG&E have reviewed the Concept Paper section on Waste Streams and Dairy Sources of methane, with an eye toward how the Concept Paper could affect SoCalGas and SDG&E operations. Regarding the composting discussion on page 20, while composting is one strategy to handle organic waste, SoCalGas and SDG&E believe that it is not as effective as controlled anaerobic digestion in mitigating potential methane emissions. If resource recovery and methane emission reduction are the goals of this section, in general, composting is a less effective approach compared to anaerobic digestion.

Solid manure management "scrape" systems are discussed on page 21 as a way to avoid generating methane in the first place from dairy operations, but it is not certain that this "scrape" strategy fully eliminates methane generation. ARB should identify the source it relied upon to come to this conclusion. To our knowledge, "scrape" versus flush systems are methods intended only for manure conveyance, not for use as comprehensive mitigation strategies.

Finally, on page 22, the Concept Paper discusses that many wastewater treatment plants "have large amounts of spare capacity to potentially take in new sources of waste." This is true to an extent, but anecdotal evidence suggests that most waste water treatment plant operators have a preference to maintain spare "surge" capacity across their equipment, preventing this spare capacity from going into regular service. While this spare capacity appears to be an opportunity for shifting organic diversion to these areas, it may be somewhat more limited than ARB suggests.

7. Comments Regarding Natural Gas as a Source of Methane

SoCalGas and SDG&E appreciate the work ARB staff has put into the SLCP Concept Paper. The request from the public and the legislature to address SLCPs is one that ARB has taken seriously, and SoCalGas and SDG&E look forward to the continuing dialogue this year on SLCPs. We also want to highlight for ARB that there are a number of bold statements in the Concept Paper that are not fuel neutral. We hope, by pointing out these statements, we can come to alternative language that is more consistent with ARB's public position of being fuel neutral in its policy making.

For example, on page 19, the Concept Paper states, "In particular, efforts to improve efficiency or electrify appliances, buildings, and vehicles will not only reduce energy use and CO2 emissions, but also serve to reduce or avoid fugitive methane emissions from the production, and potentially transmission and distribution, of natural gas." We respectfully disagree with this assertion, based on our knowledge of our transmission and distribution infrastructure. A reduction in the natural gas throughput via established infrastructure does not directly correlate to a reduction in fugitive emissions. Even if less natural gas flows through these facilities, the infrastructure will still be in operation under the same or very similar conditions. The assumption that methane emissions from the natural gas system vary with the amount of gas flowing on the system is technically incorrect - gas does not behave like a liquid - and, therefore, and should be removed from the Concept Paper.

ARB indicates it will consider "whether fugitive methane emissions should be accounted for in cost/benefit calculations for various state energy and efficiency programs…." SoCalGas and SDG&E believe the practical implication of this statement would, for example, require a school district to conduct a fugitive emissions cost-benefit analysis before switching its school buses from diesel to natural gas. In this way, we believe fugitive emissions cost/benefit analysis would be administratively onerous and would serve as a disincentive for agencies and vehicle owners to move to natural gas vehicles in any sector category.

Additionally, on page 19, the Concept Paper states: "Ultimately, a key driver of fugitive emissions is our demand for oil and natural gas which will likely have to decline significantly to meet our climate and air quality targets." SoCalGas and SDG&E believe this statement is inflammatory and completely ignores the role that natural gas has played and continues to play in improving air quality in California and mitigating climate change. SoCalGas and SDG&E respectfully requests that this statement be deleted, and the discussion on pages 18-19 be appropriately revised.

When the Concept Paper discusses the largest sources of methane – agricultural sources – it admits difficulty in measuring methane from such large sources. At the same time, there is a clear recognition and acknowledgment that approximately 60% of California's methane comes from agriculture sources. If we accept the 2013 estimate that 9% of methane comes from pipelines, that means **agriculture releases over 600% more methane as natural gas pipelines.** Consequently, SoCalGas and SDG&E believes the Concept Paper over-focuses on reducing methane from sources it can measure, without more clearly defining a path forward with respect to, admittedly, the absolute largest source of methane – agriculture.

We do appreciate the acknowledgement on page 19 that ultra-low NOx natural gas heavy duty trucks will play a key role in meeting air quality and climate goals. In the Concept Paper's discussion of black carbon (pp. 22-23), which includes diesel combustion emissions, however, it talks about cleaner diesel equipment and cleaner vehicles, but stops short of mentioning natural gas vehicles such as buses and trucks. It might be mentioned that the federal EPA, in March of this year, just awarded over $750,000 to purchase compressed natural gas vehicles to replace diesel trucks and buses in Los Angeles County. Jared Blumenfeld, EPA's Regional Administrator for the Pacific Southwest, stated "School children and residents of Los Angeles will be able to breathe cleaner, healthier air." (EPA News Release, "EPA Awards $753,476 for Twenty-one Cleaner School Buses and Trucks in Los Angeles County," 03/20/2015.) SoCalGas and SDG&E hope that ARB can include such examples where natural gas vehicles are part of the clean air and climate solutions utilized throughout the state.

8. Discussing a More Comprehensive Approach to Mitigating Climate Change

SoCalGas and SDG&E recognize that this SLCP Concept Paper is only part of a much larger effort by ARB to continue to remain a global leader on reducing climate change impacts. We appreciate the description of other plans and strategies from ARB and other agencies that will also reduce impacts from SLCPs (Concept Paper, page 12). At the same time, the Concept Paper fails to mention or discuss with any depth its perspective with respect to other GHGs, especially CO2, which is a much more persistent, and therefore pernicious, GHG. SoCalGas and SDG&E

believe this overemphasis on only SLCP reduction leads to an unbalanced approach to the problem of climate change. For example, immediately articulated at the start, the Concept Paper unequivocally states, "Cutting emissions of these [SLCPs] is the *only* way to immediately slow global warming and reduce the impacts of climate change." (Concept Paper, page 4, second paragraph, emphasis in original.) This is the climate change version of poor financial planning: seeking short term gains at the expense of long term security. Therefore, the Concept Paper should include a robust discussion about (1) how this SLCP strategy is one part of a much larger and more comprehensive approach to mitigating climate change by targeting all GHGs and not just SLCPs, and (2) if the cost-effectiveness of actions differs for SLCPs relative to other GHGs.

SoCalGas and SDG&E urge ARB to take a comprehensive approach to reducing SLCPs using cost-effective means. Such an approach would entail incorporating first the entire inventory of methane emissions, and then identifying the most efficient (from a cost and total reduction perspective) measures for reducing these non-hazardous leaks. The approach should then allow gas utilities to invest in the most efficient reductions, even if they are in other sectors, e.g., agriculture or organic waste diversion. A cross-sector approach could drive innovative change and reduce emissions quickly.

Conclusion

Again, SoCalGas and SDG&E thank you for this opportunity to comment on the Concept Paper, and we look forward to additional dialogue as the SLCP Strategy progresses. Please contact me if you have any questions or concerns about these comments.

Sincerely.

Jerilyn López Mendoza

Jerilyn López Mendoza
Environmental Affairs Program Manager – Air Resources Board
SoCalGas
and on behalf of SDG&E

Attachments