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Rajinder Sahota
California Air Resources Board
1001 "I" Street
Sacramento, CA 95812

RE: Written Comments by Southern California Gas Company and SDG&E on the Scoping Plan Update Workshop on the Energy Sector

Dear Ms. Sahota,

The Southern California Gas Company ("SoCalGas") and San Diego Gas & Electric Company ("SDG&E") appreciate this opportunity to comment on the California Air Resources Board's ("ARB") Scoping Plan Update Workshop ("Workshop"). We offer these comments to enhance the Scoping Plan and supplement the input we provided on the previous Scoping Plan Update[1] ("Update"). We strongly support ARB's commitments to meet the State's greenhouse gas ("GHG") reduction targets, and believe natural gas plays an integral role in achieving California's 2030 goals.

In this letter, we supplement our comments filed on the previous Update documents about how natural gas use contributes to meeting the state's mid-term air quality goals and the 2050 climate goals by providing additional detail on natural gas technology advancements. Specifically, we highlight the need to leverage the low emission benefits of natural gas in the transportation sector as well as developing and utilizing renewable sources of methane as methods to achieve significant GHG reductions and help facilitate integration of other renewable energy and storage technologies into the energy grid.

1. Integrating Renewable Gas and Power-to-Gas Technology

Natural gas utilization in ultra-low emitting technology applications will help achieve GHG emission reductions targets and generate air quality benefits. Development and utilization of renewable natural gas ("RNG"), and its use in ultra-low emission technologies can help further GHG reductions – and not just in trucks and buses using the newly developed "near zero" engine. But use of renewable gas in ultra-low emitting gas technology like fuel cells, and microturbines, and advanced combined heat and power ("CHP") applications can expand development of distributed generation sources complementing other renewable energy technologies, such as solar and wind.

[1] SoCalGas Comments on the Air Resources Board First Scoping Plan Update, April 28 2014.

Distributed generation resources powered by RNG, such CHP systems and natural gas microturbines and fuel cells, can help manage load centers and our electricity demand, enhancing the resiliency of the state's energy infrastructure. For example, CHP systems serve as a form of onsite power that can help separate cities and communities from the electricity grid, which can reduce strain on the grid during peak hour demand. Further, CHP can help cities diversify their energy mix, thereby increasing local energy security while also increasing energy efficiency.

RNG technology can also further the development of other renewable sources, such as solar and wind, in its capacity to balance the demand imbalance inherent in these sources through what is known as power-to-gas. In the power-to-gas process, excess renewable energy produced by wind or solar, or in times of excess and with a need to protect the grid from imbalance, is used to produce hydrogen gas through the electrolysis of water. This hydrogen can be used in transportation via fuel cells, or methanated and injected into the pipeline for traditional uses. Today, more than 35 power-to-gas facilities in the European Union are being planned, constructed, or operated. These are referred to collectively as a "system solution" because of the added benefits of helping balance the grid and provide substantial energy storage capacity. Decarbonized gas in the form of power-to-gas can play an important role integrating variable renewable generation by producing gas, and then storing it in the existing infrastructure for when it is needed to serve residential and commercial customers or for electricity generation. Power-to-gas should be rigorously evaluated by ARB and the state's energy agencies developing the Update, and should be supported as a key strategy to reduce GHGs.

2. Reduce, Reuse, Recycle… Methane

Slide 63[2] of the Workshop presentation depicts the relative contribution of California's methane sources to the State's overall methane emissions in 2013 and the projected emissions for 2030. A majority of these emissions of methane to atmosphere are shown to come from organic sources including agriculture, livestock, and dairies. By comparison, the relative methane emissions from the oil and gas sector is significantly smaller, 13% compared to the combined 55% of organic sources for 2013, and 15% compared to the combined 54% projected for 2030. However, the policy drivers for reducing GHG emissions are inequitably targeting the oil and gas sector, aimed at reducing fugitive and vented emissions and improving monitoring – the total volume of potential capture pales in comparison to other unregulated sources. We believe that greater reductions could be achieved by focusing on emissions from the greatest share of the inventory. Specifically, developing and utilizing methane capture technologies can achieve co-benefit reductions from both organic methane sources as well as the oil and gas sector. In addition, SoCalGas has requested the ARB emissions inventory team revisit the 2030 forecasts of pipeline emissions, and has been working with staff to provide data.

[2] Slide 63. "Methane by Source in California." ARB Public Workshop on the Energy Sector to Inform Development of the 2030 Target Scoping Plan Update. Aug. 23, 2016. https://www.arb.ca.gov/cc/scopingplan/meetings/08232016/scoping.plan.energy.workshop.pdf

In our Short-Lived Climate Pollutants ("SLCP") comment letter,[3] SoCalGas and SDG&E addressed our support for ARB's strategy of utilizing organic waste streams to reduce GHG emissions and criteria pollutants and detailed the benefits of utilizing biogas for air quality and climate change purposes.

The Low Carbon Fuel Standard ("LCFS") set a provisional Carbon Intensity for dairy biogas that included a benefit from avoided emissions. Further, the LCFS identified RNG from existing organic sources as the lowest carbon intensity standard pathway available, even lower than the current electricity mix or hydrogen. When sourced from dairies and organic waste diverted from landfills, RNG is rated as "carbon-negative" due to avoided methane emissions from dairies and landfills. That is, compared to electric vehicle technologies, which can at best provide zero carbon emissions, RNG sourced from dairy and other organic waste removes more carbon from the atmosphere than it produces. Further, when used as a transportation fuel, for electricity generation, or injected into the pipeline, RNG can significantly mitigate atmospheric methane emission while also providing a flexible and reliable renewable energy source. Currently, SoCalGas supports and has been engaged in the proposed Dairy Biogas for Freight Vehicles project in the San Joaquin Valley. The cluster of dairies involved in the project could generate 1.5 to 2.5 million diesel-gallon equivalents per year using dairy waste, and each dairy is also capable of generating renewable electricity on site with any excess biogas.

However, for organic sources like dairies to be used most effectively as sources of RNG, they need to be connected to the electric grid or natural gas pipelines for injection. As explained in our SLCP comment letter, there are definite challenges of interconnecting these distributed sources of renewable energy. High project startup costs, including the costs of connecting to the pipeline system, are some of the challenges inherent to RNG project development, regardless of feedstock. Interconnection to the pipeline system gives RNG access to the broadest market possible, facilitating the most diverse and flexible utilization opportunities and hence most dynamic and effective incentive strategies to encourage methane capture. Regulation providing for energy infrastructure investment by California regulated utilities is necessary to accept and transport RNG to end use customers, and such investment should be seen as a public benefit and recoverable in rates from all classes of ratepayers.

Additionally, competition for feedstock with other fuel sources has the potential to negatively impact successful development and deployment of RNG technologies. Currently, ARB has a proposed "Low-Emission Diesel Requirement" in their Mobile Source Strategy that intersects with South Coast Air Quality Management District's (SCAQMD) proposed biogas control measure and incentive program for near-zero heavy-duty trucks. The objective of ARB's measure is to replace 50 percent of diesel demand with low emission diesel by 2031, which establishes a state policy that could significantly bias the growth of the biofuels industry and limit innovation in the alternative fuels markets[4]. However, to reach the production levels anticipated in these plans for both renewable diesel and RNG, the industry will require substantial financial support. Because there is a finite amount of investment funding available, it

[3] SoCalGas comments on Air Resources Board's Proposed Short-Lived Climate Pollutant Reduction Strategy, May 26, 2016.
[4] "Mobile Source Strategy," California Air Resources Board (May 2016), p. 153 *available at*: http://www.arb.ca.gov/planning/sip/2016sip/2016mobsrc.pdf

is critical to consider the implications of these policies on the growth and innovation of the biofuels industry. To inform a policy assessment on the growth of the renewable fuels industry, the respective biofuels technologies, costs, energy consumption, feedstock impacts and near- and long-term environmental health benefits should be examined. SoCalGas and SDG&E look forward to reviewing and commenting upon ARB's newly developed "Biofuel Supply Module," scheduled for release today, September 7, 2016, which will impact the assessment of low-carbon fuel availability for the Update.

It is essential to remember that production of RNG from dairy biogas relies on methane that would normally be released into our atmosphere and converts it into clean fuel for our freight vehicles. It's a double environmental win: California will reduce emissions from the agriculture sector while generating a renewable energy source for other applications.

3. Renewable Natural Gas and Transportation

SoCalGas and SDG&E agree with ARB's determination that to "close the gap" between current GHG reduction strategies and legislative emission targets, additional reductions from existing sectors will be needed to achieve these targets, particularly the 2030 limit. Further, we believe that one of the opportune places for these additional reductions is within the transportation sector as conveyed in the Workshop presentation. However, we disagree that these reductions should be achieved by solely focusing on electrifying the transportation sector as depicted in slide 46.[5] In our comments on the California Sustainable Freight Action Plan[6], we discuss the utilization of ultra-low emitting technology with RNG in the transportation sector as a strategy to reduce GHG and criteria pollutant emissions to reach the State's emissions targets more expeditiously than a pure electrification scenario, especially as ARB has identified that electrification of heavy-duty trucks will not be available in the shorter time frame needed for air pollutant reductions.

As detailed in *Game Changer Technical Whitepaper* by Gladstein, Neandross & Associates, a heavy-duty natural gas engine is now commercially available which meets ARB's lowest-tier optional low-NOx emission standard at 0.02 g/bhp-hr NOx.[7] When paired with RNG, this technology will provide a commercially-proven, broad-based, and affordable strategy to immediately achieve major reductions in emissions of criteria pollutants, air toxins, and GHGs. As ARB has identified that heavy-duty electric and fuel cell electric vehicles will not be available in the next several decades,[8] RNG provides the single best opportunity for California to achieve its air quality and climate change goals in the on-road heavy-duty transportation sector. Equally important, major reductions of cancer-causing toxic air contaminants can immediately

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[5]Slide 46. "Transportation Electrification." ARB Public Workshop on the Energy Sector to Inform Development of the 2030 Target Scoping Plan Update. Aug. 23, 2016. https://www.arb.ca.gov/cc/scopingplan/meetings/08232016/scoping.plan.energy.workshop.pdf

[6] SoCalGas comments on Air Resources Board's Multi-Agency "California Sustainable Freight Action Plan," July 6, 2016

[7] Game Changer Technical White Paper, Gladstein, Neandross & Associates, May 3, 2016. http://ngvgamechanger.com/pdfs/GameChanger_FullReport.pdf.

[8] See ARB Technology Assessment: Medium and Heavy Duty Battery Electric Trucks and Buses, October 2015, available at http://www.arb.ca.gov/msprog/tech/techreport/bev_tech_report.pdf and ARB Technology Assessment: Medium and Heavy-Duty Fuel Cell Electric Vehicles, November 2015, available at http://www.arb.ca.gov/msprog/tech/techreport/fc_tech_report.pdf.

be realized in disadvantaged communities adjacent to freeways and areas of high diesel engine activity, where relief is most urgently needed.

SoCalGas and SDG&E strongly support the LCFS which identifies RNG from existing organic sources, such as dairy waste, landfills, and waste water treatment as the lowest carbon intensity fuels available. A review of the LCFS reporting tool shows that RNG as a percentage of total natural gas used in the transportation sector has increased dramatically in the past year. We believe the LCFS will help meet California's environmental and economic goals: it has been instrumental in creating price parity between alternative fuels and fossil fuels, thereby spurring the development of low carbon fuels in California—such as RNG—that will yield substantial future GHG reduction benefits.

Conclusion

Methane emissions (primarily from agriculture, dairies, and landfills) will continue to be a part of the state's GHG inventory as they have been historically, even with aggressive control technology. Capture and management of these methane emissions will have a proportionately greater impact than efforts to control CO_2 emissions because of the higher global warming potential of methane. Combustion of methane, i.e. conversion to CO_2, reduces its global warming potential by a factor of more than 20 times. Therefore, combustion of captured or recovered methane emissions, such as RNG, will play an important role in current and future plans to reduce global warming.

Again, SoCalGas and SDG&E appreciate the opportunity to comment on the Scoping Plan Update Workshop and we look forward discussing additional dialogue in the Scoping Plan development process. 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