SoCalGas
A Sempra Energy utility

George I. Minter
Regional Vice President
External Affairs & Environmental Strategy
Southern California Gas Company
555 W. 5th Street
Los Angeles, CA 90013

March 20, 2017

Carol Sutkus, Manager
South Coast Air Quality Planning Section
carol.sutkus@arb.ca.gov
California Air Resources Board
P.O. Box 2815
1001 "I" Street
Sacramento, CA 95814

Kirsten King Cayabyab, Air Pollution Specialist
South Coast Air Quality Planning Section
kirsten.cayabyab@arb.ca.gov

Re: Comments on Revised Proposed 2016 State Strategy for the State Implementation Plan

Dear Ms. Sutkus and Ms. Cayabyab:

SoCalGas appreciates the opportunity to provide comments on the Revised Proposed 2016 State Strategy for the State Implementation Plan (State Strategy or SIP) that the California Air Resources Board (ARB) will be considering for approval on March 23, 2017. SoCalGas has been actively involved in South Coast Air Quality Management District's (SCAQMD) efforts to develop a technically sound, fuel and technology neutral Air Quality Management Plan (AQMP or Plan), and we encourage ARB to approve SCAQMD's Plan.

SoCalGas supports our state air districts' and ARB's efforts to improve air quality and protect public health by demonstrating timely attainment of federal Clean Air Act Standards, while also sustaining the vitality of California's economy. We look forward to continuing to collaborate with local air districts within our service territory and ARB on the implementation of the proposed measures, efforts to secure incentive funding, and the development of incentive programs. To that end, SoCalGas respectfully submits the following comments on the Revised Proposed 2016 State Strategy for the SIP.

1. **ARB Should Approve SCAQMD's Air Quality Management Plan and Submit to EPA as a Revision to California's SIP**

The SCAQMD's Plan successfully tackles one of the region's greatest challenges – attaining the 1997 8-hour ozone standard by 2023. As proposed by SCAQMD staff, the AQMP was the result of over four years of collaboration with stakeholders and aggressively pursues the emission reductions necessary to attain federal ozone standards, while recognizing the need for

incentives to pursue accelerated emission reductions in mobile and stationary source sectors. The attainment of the first ozone standard must occur in the next six years. Delaying adoption does not change the deadline; it instead shortens our time to act to reduce emissions. SoCalGas supports ARB action to approve SCAQMD's plan and forward to the U.S. Environmental Protection Agency (EPA). We also express concern about the implementation of the indirect source measures, and urge collaboration with impacted stakeholders as originally envisioned by the AQMP as proposed by staff.

Identifying Viable Funding Sources for Near-Zero Heavy-Duty Trucks is Key to the Success of the AQMP. As ARB well knows, mobile sources are responsible for the large majority of oxides of nitrogen (NOx) emissions in the South Coast Air Basin. More than 80 percent of the region's NOx emissions come from mobile sources, with heavy-duty trucks as the single largest categorical contributor. Since SCAQMD has limited authority to regulate mobile source emissions, the Plan's fair-share, incentives-based approach is the appropriate solution. And, incentivizing the widespread deployment of near-zero heavy-duty trucks is the single most impactful emission reduction strategy. An amendment made to the AQMP by Board Member Clark Parker at the March 3, 2017 adoption hearing provides clear direction that "an accelerated deployment of current and emerging near-zero emission natural gas engine technologies will provide significant, cost-effective and near-term benefits to regional and local air quality, energy supply security, and public health."[1] SoCalGas strongly agrees with this directive – the technology to transform the heavy-duty trucking sector is available today and ready to be deployed.

SoCalGas supports ARB's and SCAQMD's efforts to pursue the funding sources needed to implement the AQMP, and looks forward to actively participating in the process. We support ARB's inclusion of an enforceable commitment for SIP emission reductions through a prospective incentive-based emission reduction measure designed to achieve NOx emission reductions by accelerating the penetration of near-zero and zero-emission heavy-duty engines.[2] Implementation of the "Incentive Funding to Achieve Further Emission Reductions from On-Road Heavy-Duty Vehicles" measure commits at least $28 million of current State and SCAQMD incentive funds to truck replacement projects in the 2015-2020 timeframe.[3] An additional $7 million per year may be allocated for low-NOx trucks using renewable fuels.[4] SoCalGas strongly encourages ARB to prioritize cost-effective, near-zero heavy-duty engines when developing incentive funding programs pursuant to this measure.

As discussed in the State Strategy, Cummins Westport Inc. has certified the world's first heavy-duty engine at near-zero emission levels—90 percent below the current federal standard, and certified to meet ARB's lowest-tier Optional NOx Emission Standard and reduces

---

[1] "Final 2016 Air Quality Management Plan," South Coast Air Quality Management District, pp. 10, 15 (March 2017), *available at*: http://www.aqmd.gov/docs/default-source/clean-air-plans/air-quality-management-plans/2016-air-quality-management-plan/final-2016-aqmp/final2016aqmp.pdf?sfvrsn=11.

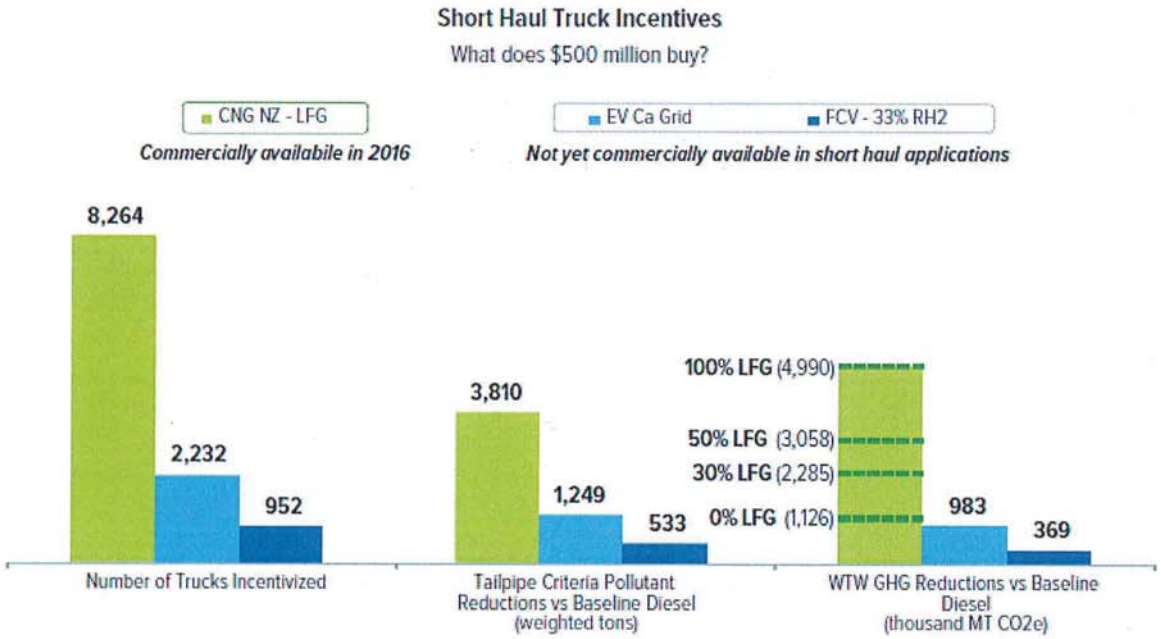
[2] "Revised Proposed 2016 State Strategy for the State Implementation Plan," ARB, pp. 79-80 (March 7, 2017).

[3] *Id.*

[4] *Id.*

greenhouse gases (GHG) by 15 percent. This 8.9-liter "next generation" heavy-duty natural gas engine is commercially available for transit bus, refuse, school bus, and medium-duty truck applications. Additional near-zero natural gas engines are expected to follow by 2018, including a 12-liter engine addressing a wider array of heavy-duty on-road vehicle applications. The 12-liter engine is suitable for a variety of heavy-duty vehicles, including regional-haul truck/tractor, vocational, and refuse applications and is currently being demonstrated throughout the nation in various fleets. This engine is also targeted for certification at 0.02 g/bhp-hr NOx (90 percent reductions), and will give customers and fleets the option of a larger, more powerful engine.

Replacing traditional heavy-duty trucks with advanced near-zero emission natural gas vehicles (NGV) provides the most cost-effective solution to help meet our air quality and climate change goals in the near-term. The figure below demonstrates the relative impact of incentives supporting near-zero heavy-duty trucks can have compared to alternative choices – which may not even be commercially available for decades. Providing incentives for near-zero emission heavy-duty NGVs fueled with renewable gas can have three times the tailpipe criteria pollutant reduction and five times the "well-to-wheels" GHG reduction benefits as the next best alternative.[5]



Incentive amounts based on incremental purchase cost of advanced heavy-duty short haul trucks over baseline diesel truck
Based on emissions and vehicle activity data from CARB EMFAC 2014
Weighted emissions = NOx + 20*PM10 + ROG
GHG emissions based on illustrative fuel pathways calculated by ARB Staff using CA-GREET 2.0
Cost effectiveness uses Moyer program capital recover factors based on typical retention period of first owner

Nevertheless, ARB continues to emphasize zero-emission vehicle (ZEV) technologies, and specifically highlights ZEV applications, such as ZEV drayage applications as targets for

[5] "Game Changer," Technical White Paper, Next Generation Heavy-Duty Natural Gas Engines Fueled by Renewable Natural Gas, May 3, 2016, Figure 4. http://ngvgamechanger.com/pdfs/GameChanger_FullReport.pdf

this funding measure.[6] It is critical that these limited dollars be used to maximize emission reductions in the most cost-effective manner. The SCAQMD Board has expressed in no uncertain terms that near-zero, natural gas engines should be prioritized as the most cost-effective, heavy-duty solution for the betterment of air quality in the region.[7] SoCalGas urges ARB to align with SCAQMD and closely examine cost-effectiveness as it further develops heavy-duty vehicle incentive programs.

The Volkswagen settlement funds intended to mitigate the impacts of NOx should be used for that limited purpose. Near-term funding sources, particularly the Mitigation Trust from Volkswagen (VW) settlement ($381 million), will be needed to incentivize the deployment of near-zero heavy-duty trucks. The Mitigation Trust portion of the VW settlement was intended to "fund projects to replace older and dirtier heavy-duty diesel vehicles and equipment with cleaner vehicles and equipment to get immediate emission reductions" in order to mitigate the impact of the past and future environmental harm.[8] However, as part of the State Strategy Strategy, ARB identifies "light-duty ZEV infrastructure" as potentially eligible for funding from the Mitigation Trust.[9] SoCalGas strongly urges ARB not to dip into the NOx Mitigation Trust to further fund ZEV infrastructure, as the ZEV Investment Commitment portion of the funds ($800 million) was specifically set-aside for that purpose. Rather, the Mitigation Trust should be designated funding for near-zero heavy-duty trucks that can achieve cost-effective, and near-term emission reductions in California's most severely impacted air districts.

2. The San Joaquin Valley Needs Further, Significant Near-Term Emission Reductions to Demonstrate Attainment of the Fine Particulate Matter (PM2.5) Standards by 2019 and 2021

SoCalGas supports the use of incentives to further deploy near-zero, heavy-duty trucks in the San Joaquin Valley in order to achieve the critical, near-term NOx reductions needed to attain the PM2.5 standards. We share San Joaquin Valley Air Pollution Control District's (SJVAPCD) concern that the State Strategy does not commit to enough near-term emission reductions in the San Joaquin Valley. In the State Strategy, ARB recognizes that annual PM2.5 levels in the Valley have decreased approximately 20 percent since 2000, but in recent years, concentrations of PM2.5 in the San Joaquin Valley have reached levels three to four times the 24-hour standard of 35 $\mu g/m^3$.[10] These high concentrations directly impact the citizens of the San Joaquin Valley, resulting in increased mortality and respiratory illness.[11]

---

[6] "Revised Proposed 2016 State Strategy for the State Implementation Plan," ARB, p. 80 (March 7, 2017).

[7] "Final 2016 Air Quality Management Plan," South Coast Air Quality Management District, pp. 10, 15 (March 2017), *available at*: http://www.aqmd.gov/docs/default-source/clean-air-plans/air-quality-management-plans/2016-air-quality-management-plan/final-2016-aqmp/final2016aqmp.pdf?sfvrsn=11.

[8] "Federal Court Approves $14.7 billion Settlement in VW Cheating Case," ARB News Release (Oct. 15, 2016), available at: https://www.arb.ca.gov/newsrel/newsrelease.php?id=870.

[9] "Revised Proposed 2016 State Strategy for the State Implementation Plan," ARB, p. 42 (March 7, 2017).

[10] "Revised Proposed State SIP Strategy," ARB, p. 2 (March 7, 2017).

[11] Specifically, the number of days exceeding the 24-hour standard in the San Joaquin Valley in 2013, 2014, 2015 and 2016 was 78, 58, 63 and 39, respectively (arb.ca.gov). Some episodes exceeding the 24-hour standard lasted an entire month. For example, in January 2013, 2014 and 2015 nearly every day exceeded the 24-hour standard of 35

As discussed at the October 20, 2016 ARB Board meeting held at SJVAPCD, ARB staff was directed to conduct workshops in the San Joaquin Valley, assess opportunities for further reductions from stationary and mobile sources, prioritize reductions that can happen in the near-term, and assess long-term reductions that can be implemented prior to 2025. SoCalGas shares the SJVAPCD's concern that ARB has not yet developed additional recommendations for PM2.5 attainment in the San Joaquin Valley, and that the State Strategy does not propose sufficient, near-term NOx reductions for SJVAPCD to attain the PM2.5 standards by the 2019 and 2021 attainment deadlines. Given the very short timeline to demonstrate attainment, SoCalGas recommends that ARB prioritize developing commitments for incentive programs to deploy near-zero, heavy-duty trucks in the San Joaquin Valley as they have done for the South Coast Air Basin.[12] This strategy is the most immediate and cost-effective approach to securing large-scale NOx reductions.

While SoCalGas supports approval of the State Strategy on March 23, we encourage ARB continue to work closely and quickly with SJVAPCD and modify the State Strategy and Mobile Source Strategy with enforceable commitments for emission reductions in coordination with the development of the SJVAPCD Integrated PM2.5 Plan that is scheduled to be completed in five months.

3. On-Road Heavy-Duty Vehicle Proposals Included in ARB's State Strategy Should Be Designed as Fuel Neutral, Performance-Based Measures

SoCalGas supports the proposed federal low-NOx standard for heavy-duty trucks. As detailed in the State Strategy, heavy-duty trucks are the largest source of NOx in both the South Coast and the San Joaquin Valley Air Basins.[13] To achieve these reductions, California needs an accelerated transition to near-zero emission heavy-duty trucks for the fleets based in California as well as a new federal, heavy-duty truck engine emission standard to address trucks that operate in the state but are not based here. The May 2016 Mobile Source Strategy notes, "[a]bout 60 percent of total heavy-duty truck [vehicle miles traveled] in the South Coast on any given day is accrued by trucks purchased outside of California, and are exempt from California standards."[14] SoCalGas agrees that EPA action to establish a performance-based, federal low-NOx standard for trucks is necessary, and has submitted letters supporting both SCAQMD's and SJVAPCD's Petitions to EPA for a federal low-NOx standard.[15]

µg/m3, and the buildup in PM2.5 levels culminated in concentrations of 128 (3.7 times the standard), 107 (3.1 times the standard), and 111 (3.2 times the standard), respectively.

[12] *See* "Revised Proposed State SIP Strategy," ARB, pp. 79-80 (March 7, 2017) (proposing an enforceable commitment through the "Incentive Funding to Achieve Further Emission Reductions from On-Road Heavy-Duty Vehicles" measure).

[13] "*Id.* at p. 2.

[14] "Mobile Source Strategy," ARB, p.46 (May 2016).

[15] "Petition to EPA for Rulemaking to Adopt Ultra-Low NOx Exhaust Emission Standards for On-Road Heavy-Duty Trucks and Engines," South Coast Air Quality Management District (June 3, 2016); "Petition Requesting that EPA Adopt New National Standards for On-Road Heavy-Duty Trucks and Locomotives Under Federal Jurisdiction, San Joaquin Valley Air Pollution Control District, (June 22, 2016).

The proposed "Innovative Clean Transit" measure should clearly state that the transition to a "suite of cleaner transit options" will be guided by performance-based standards, not zero-emission technology mandates. SoCalGas is encouraged to see ARB considering a more flexible approach to allow transit fleets to deploy advanced, clean technologies. The revised measure states that "ARB would develop and propose a variety of approaches and mechanisms to support the transition to a suite of innovative clean transit options."[16] The measure then goes on to explain that the proposal may require a "binding" commitment from transit providers for transitioning to zero-emission buses and *other technologies*," and that zero-emission buses should be deployed to the maximum extent feasible (emphasis added).[17] The revised language indicates that ARB is moving incrementally towards a more flexible approach, and SoCalGas appreciates that ARB staff has been listening to the concerns expressed by transit agencies. However, we urge ARB to more closely examine the emission reductions that can be achieved through near-zero advanced technology solutions operating on renewable fuels.

Transit agencies including Los Angeles County Metropolitan Tansportation Authority (LA Metro), San Diego Metropolitan Transit System, Orange County Transportation Authority, and Santa Monica's Big Blue Bus have thoroughly studied the use of zero and near-zero emission natural gas buses running on renewable gas, and have found using the latter provides significant emissions benefits at an acceptable cost. LA Metro's recent study found that the use of near-zero engines with renewable gas is the most cost-effective strategy by an order of magnitude for reducing NOx and GHGs as compared to using battery electric or fuel cell powered buses.[18] Moreover, in order to effectively deliver transportation services to California citizens, transit agencies need flexibility to deploy advanced technologies in ways that are synergistic with their operations. Transit agencies in Southern California have already begun heavily investing in upgrading their fleets with near-zero engines running on renewable gas, and a mandate to electrify fleets would result in significant stranded investment.[19]

As ARB moves to further develop the Innovative Clean Transit measure, SoCalGas supports the pursuit of a performance-based standard, not a technology mandate, to address GHG and criteria pollutant emissions, thereby providing transit agencies with affordable technology choices and operational flexibility.

---

[16] "Revised Proposed State SIP Strategy," ARB, pp. 69-70 (March 7, 2017).

[17] *Id.*

[18] "Zero Emissions Bus Options: Analysis of 2015-2055 Fleet Costs and Emissions," Ramboll Environ (Feb. 5, 2016) (prepared for LA Metro), *available at*: https://media.metro.net/board/Items/2016/09_september/20160914atvcitem4.pdf.

[19] For example, Orange County Transportation Authority has invested heavily to upgrade fleets to significantly reduce emissions by utilizing renewable gas, repowering 199 buses with 0.2 g-bhp/hr engines, and purchasing 98 new, near-zero, 0.02 g-bhp/hr buses. *See* August 9, 2016 letter from OCTA to Dr. Philip Fine re Draft 2016 Air Quality Management Plan, *available at*: http://www.aqmd.gov/docs/default-source/clean-air-plans/air-quality-management-plans/2016-air-quality-management-plan/final-2016-aqmp/2016aqmpRTC-1of2.pdf?sfvrsn=4.

The "Zero-Emission Airport Shuttle Buses Measure" must take feasibility and operational concerns voiced by airports into account. The measure, as drafted in the State Strategy, is a technology mandate proposing that "zero-emission transit buses can reasonably be translated to airport shuttle buses."[20] However, at ARB's February 22, 2017 public workshop on zero-emission airport shuttle buses, multiple stakeholders raised concerns about the feasibility of implementing the proposal. Both San Diego and Oakland airports commented on the high cost of implementation and difficulties transitioning fleets to ZEV technology. For example, San Diego airport noted that the one battery-electric vehicle in its fleet only had a range of 85 miles, while the average route for their shuttle buses is roughly 600 miles per day. ARB should consider the costs and difficulty of transitioning fleets to ZEV technology, and as well as consider the need for flexibility by transit agencies to select technologies that will meet their fleet and ridership requirements.

Rather than proposing a technology mandate, ARB is better served to promulgate a performance-based standard to meet the stated goal of achieving NOx and GHG emissions reductions. As previously discussed, LA Metro found that near-zero engines powered by renewable gas can achieve greater NOx and GHG reductions at a cost lower than battery electric or fuel cell powered buses available today.[21] In addition, ARB's Short-Lived Climate Pollutant (SLCP) Strategy calls for greater utilization of renewable gas in the transportation sector as a crucial strategy to not only reduce transportation emissions, but also to reduce methane emissions that would otherwise be released into the air from sources such as landfills and dairies. Requiring a transition of fleets to ZEVs would penalize market participants already moving towards near-zero and renewable gas technology.

These facts demonstrate the substantial benefits of allowing California transit agencies to use near-zero emission natural gas buses for the foreseeable future. Low-NOx engines and low-carbon renewable gas are all available now to help accomplish California's goals in a timely manner. Accordingly, SoCalGas urges ARB to revise the State Strategy to include them as options for airport shuttle buses.

4. When Coupled With Low-NOx Engines, Renewable Gas Can Transform the Transportation Sector By Significantly Reducing GHGs

SoCalGas strongly supports the use of renewable gas in the transportation sector as a climate change strategy complementary to achieving Clean Air Act criteria pollutant standards. ARB's SLCP Strategy proposes the capture of biogas to be used as a transportation fuel, injected into natural gas pipelines, and used to generate on-site renewable electricity and heat.[22] Increasing the use of renewable gas as a transportation fuel would not only reduce methane emissions from organic waste streams, but also reduce black carbon by displacing diesel

---

[20] "Revised Proposed State SIP Strategy," ARB, p. 77 (March 7, 2017).

[21] "Zero Emissions Bus Options: Analysis of 2015-2055 Fleet Costs and Emissions," Ramboll Environ (Feb. 5, 2016) (prepared for LA Metro), *available at*: https://media.metro.net/board/Items/2016/09_september/20160914atvcitem4.pdf.

[22] California Air Resources Board, Proposed Short-Lived Climate Pollutant Strategy, p. 66 (November 2016), *available at*: https://www.arb.ca.gov/cc/shortlived/meetings/11282016/revisedproposedslcp.pdf.

in older, conventionally fueled heavy-duty vehicles. Further, using renewable gas in a near-zero emission engine can further reduce GHG emissions by 50-80 percent depending on the source of biogas. When sourced from dairies and organic waste diverted from landfills, the carbon intensity of renewable gas is rated as "carbon-negative," due to avoided methane emissions from dairies and landfills. Therefore, renewable gas provides the single best opportunity for California to achieve its air quality and climate change goals in the on-road heavy-duty transportation sectors.

The most powerful driver to produce renewable gas in today's market is to fuel natural gas vehicles, and support both California's Low Carbon Fuel Standard (LCFS) and the Federal Renewable Fuel Standard programs. According to the LCFS program, in the last half of 2015, the majority of natural gas vehicle fuel in California was renewable gas – a huge success for this program, but an indication that supply is approaching parity with demand. Growing the natural gas vehicle market in California is not only an impactful and cost-effective way to significantly reduce NOx and GHG emissions, but will also be critical to increasing the demand for renewable gas as the existing market becomes increasingly saturated.

ARB should carefully evaluate the impact of requiring renewable diesel in the proposed "Low Emission Diesel Requirement" on the developing biofuels market. SoCalGas is encouraged that the measure as revised does not include a mandate to displace a certain quantity of diesel demand with low-emission diesel; however, we continue to urge ARB to take a close look at implications of renewable fuel policies on the growth and innovation of the nascent biofuels industry. This industry needs support to grow, especially to reach production levels anticipated in ARB's plans for both renewable diesel and renewable natural gas. Policymakers must examine the respective renewable biofuels technologies, costs, energy consumption, feedstock impacts, near and long term environmental benefits, and evaluate the impact on the direction of growth of the renewable fuels industry generally.

SoCalGas looks forward to continuing to collaborate with ARB and the air districts in pursuit of SIP implementation. We reiterate our support for the Board's approval of both the Revised Proposed State SIP Strategy, as well as the SCAQMD's AQMP at the March 23 hearing. Please feel free to reach out to Tim Carmichael at TCarmichael@semprautilities.com or 916.492.4248 if you have any questions regarding our comments.

Respectfully submitted,

George Minter
Regional Vice President
External Affairs & Environmental Strategy
Southern California Gas Company

cc: (see next page)

Honorable Members, Air Resources Board
Ms. Mary Nichols, Chair
Ms. Sandra Berg, Vice Chair
Dr. John R. Balmes
Mr. Hector De La Torre
Mr. John Eisenhut
Mr. Dean Florez
Mr. John Gioia
Ms. Judy Mitchell
Mrs. Barbara Riordan
Mr. Ron Roberts
Mr. Phil Serna
Dr. Alexander Sherriffs
Mr. Daniel Sperling
Ms. Diane Takvorian