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Mr. Ben Ellenberger
Technology and Environmental Assessment
Division Manager
Santa Barbara County
Air Pollution Control District
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Subject: Comments on Greenhouse Gas (GHG) Mitigation Strategies in Santa Barbara County – Workshops held September 20 and 21, 2017

Dear Mr. Ellenberger:

Southern California Gas Company (SoCalGas) appreciates the opportunity to provide feedback on the Greenhouse Gas (GHG) Mitigation Strategies in Santa Barbara County presented at workshops on September 20 and 21, 2017. SoCalGas supports efforts to increase energy efficiency and reduce GHGs and criteria air pollutants. We understand the Santa Barbara County Air Pollution Control District's (SBCAPCD) desire for local options to mitigate GHGs that also provide local environmental and economic co-benefits. SoCalGas works to find natural and renewable gas solutions for customers and local governments that provide critical criteria pollutant emissions including oxides of nitrogen (NOx) and toxic air contaminants, as well as GHGs.

We note that there are only electric options in your spreadsheet of proposed GHG mitigations. SoCalGas recommends a fuel neutral and technology agnostic approach to maximize cost effective emission reductions. These comments provide information on additional solutions that we suggest being included in your list of GHG Mitigation Strategies for Santa Barbara County.

1. Renewable Natural Gas

Traditionally, pipeline natural gas comes from deep underground wells and is often associated with petroleum production. On the other hand, biogas is natural gas derived from organic waste, or other renewable resources. There are a variety of sources of organic waste that can be recycled to produce biogas. These include food waste, garden and lawn clippings, animal and plant based material as well as degradable carbon sources such as paper, cardboard and wood.

Biogas typically consists of methane and carbon dioxide, with traces of other elements. Biogas is cleaned and conditioned to remove or reduce non-methane elements to produce renewable

natural gas (RNG). The converted RNG may be used on site or put into the utility pipeline as a replacement for traditional natural gas.

Since RNG comes from organic sources that originally removed carbon dioxide from the atmosphere during photosynthesis it is considered a carbon neutral fuel. Often, RNG can be produced from organic waste that would otherwise decay and release methane emissions. Capturing these methane emissions can make RNG a *carbon-negative* fuel by preventing these potent GHG emissions from being vented to the atmosphere.

Replacing the use of fossil natural gas with RNG not only reduces GHGs associated with energy use, but reduces methane from organic sources, which account for over 80% of California's methane emissions. RNG can be used for all existing natural gas end-uses to lower net life-cycle GHG emissions by at least 40%. A California Air Resources Board's (CARB)-University of CA at Davis study estimated that around 20% of California's residential natural gas can be supplied by RNG from organic sources such as dairy manure, landfills, organic municipal solid waste, and wastewater treatment facilities.[1] Of note, Kern County, which adjoins Santa Barbara County has 60 dairies and is the fifth highest milk producing county in the state, thus there is high likelihood that RNG from dairy digester projects in Kern County can be used in Santa Barbara County.

The State recently adopted several policies that rely on the continued use of natural gas infrastructure to meet the State's decarbonization goals. Specifically, SB 1383-Short-lived climate pollutants: methane emissions: dairy and livestock: organic waste: landfills (Lara, 2016[2]) and CARB's Short-Lived Climate Pollutant (SLCP) Reduction Plan[3] require the increased use of renewable gas to reduce methane from organic sources by 40% by 2030, including injection into natural gas pipelines and utilization in the transportation sector.[4] Therefore, SBCAPCD should offer GHG mitigation with multiple fuel options.

SoCalGas requests that you include options for projects that produce RNG and give credit to those who commit to purchase RNG to accelerate the development of this valuable resource. Developing RNG from organic waste not only promotes better management of our waste streams and produces renewable energy with a lower greenhouse gas impact than traditional fuels, but it will also help California meet the goals of both the SLCP Reduction Strategy and SB 1383.

2. Near Zero Natural Gas Trucks Using RNG

SoCalGas requests that SBCAPCD provide add near-zero heavy duty trucks to its list of GHG mitigation options eligible for incentive dollars. Incentivizing use of these ultra-low NOx engines provides critical criteria pollutant and GHG emissions reductions. We encourage SBCAPCD to consider how these near-zero engines can help reduce emissions from truck trips during both construction and operational phases of a new project.

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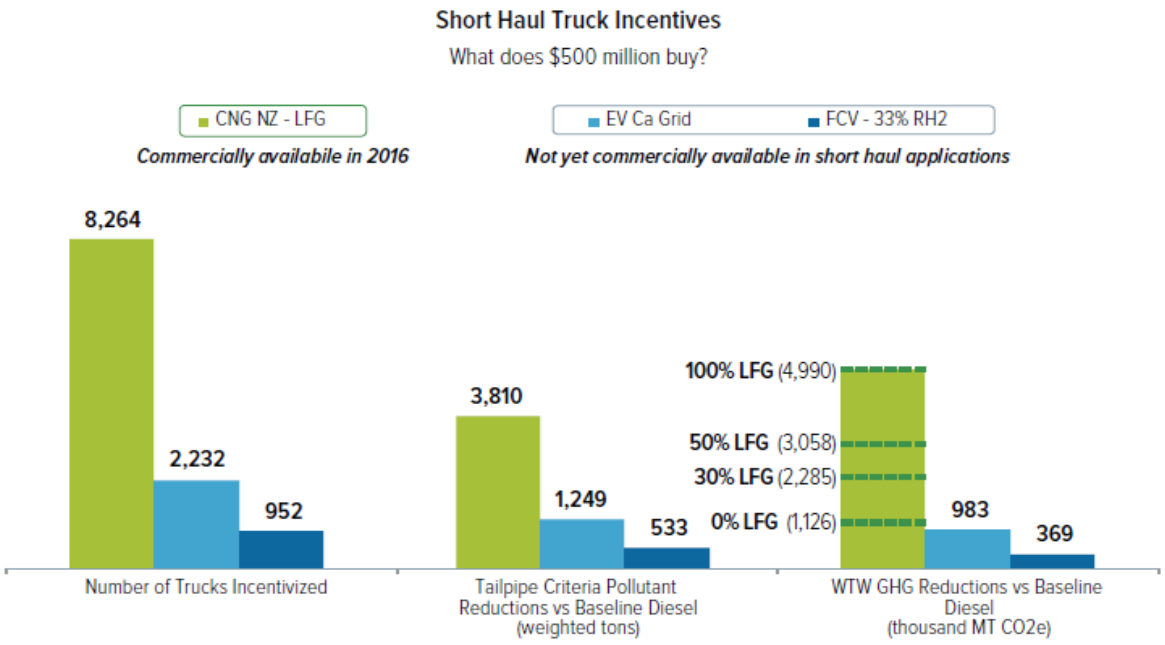
[1] https://www.arb.ca.gov/research/apr/past/13-307.pdf
[2] https://leginfo.legislature.ca.gov/faces/billNavClient.xhtml?bill_id=201520160SB1383
[3] https://www.arb.ca.gov/cc/shortlived/shortlived.htm
[4] CARB Short-Lived Climate Pollutant Reduction Strategy, March 2017 p. 66, https://www.arb.ca.gov/cc/shortlived/meetings/03142017/final_slcp_report.pdf

Cummins Westport Inc. has certified the world's first heavy-duty engine at near-zero emission levels–90 percent below the existing federal standard, and certified to meet CARB's lowest-tier optional near-zero emission standard. This and other natural gas fueled engines also reduce GHG emissions by 15 percent, and when fueled with RNG can reduce GHGs by 60 to 400 percent, compared to traditional transportation fuels. With the use of RNG, heavy-duty vehicles 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]

The 8.9-liter "next generation" near-zero heavy-duty natural gas engine is commercially available and is being deployed in throughout the State in transit bus, refuse, school bus, and medium-duty truck applications. Additional near-zero heavy-duty natural gas engines are expected to follow, including a 12-liter engine that will be commercially available in early 2018. The 12-liter engine is suitable for a variety of heavy-duty vehicles, including regional-haul truck/tractor, vocational, and refuse applications and has been demonstrated throughout the nation in various fleets. This engine is in the final stage of CARB certification at 0.02 g/bhp-hr (90 percent NOx 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 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 incentives supporting near-zero heavy-duty trucks can have compared to alternative choices–which may not even be commercially available for several decades. Enabling greater diversity and competition for these programs can produce major benefits in terms of emissions reductions and numbers of vehicles upgraded. We encourage SBCAPCD to be fuel and technology neutral, and emphasize cost effectiveness of solutions when allocating incentive funding.

[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



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

3. Balanced Energy Approach

Natural gas plays a critical role in our state as a low-cost and low-emission fuel. As the lowest-price fuel source in California, natural gas provides valuable, low-cost energy to ratepayers, including the 33% of SoCalGas residential customers that are enrolled in the California Alternate Rates for Energy program many of whom reside in disadvantaged communities. The economic impact on ratepayers—especially low-income ratepayers—must be considered when recommending energy efficiency strategies. Consider that the average annual household electricity bill is $1460, while the annual natural gas bill is $421. Without natural gas in the home, the cost of energy for many consumers could rise. In the California Energy Commission's Pre-Rulemaking on 2019 Building Energy Efficiency Standards docket[6], an Energy and Environmental Economics, Inc. study examining building electrification found a $24 monthly energy bill increase when moving to an all-electric home from a mixed-fuel home. Additionally, this analysis showed that an all-electric home required more energy than a mixed-fuel home.

With California's aggressive greenhouse gas reduction goals, some have asserted that the best path to achieve those goals is through widespread electrification. However, when appropriate analyses are conducted, it raises concerns around grid reliability and harmonization. This issue has been recognized through what is commonly known in California as "the duck curve," depicting net load over a 24-hour period. A comparison of forecasted versus actual net load

[6] http://www.energy.ca.gov/title24/2019standards/prerulemaking/

shows that this issue develops faster and more pronounced than anticipated, and requires assertive mitigation.[7,8,9]

SoCalGas encourages SBCAPCD to continue the path of balanced energy, allowing builders and designers to utilize all available resources, from higher-efficiency energy systems to multiple fuel sources, both for conventional use and renewable generation systems. This approach fosters innovation, competition and flexibility, while still advancing California's energy policies. SoCalGas participates in multiple research and demonstration projects that showcase the feasibility and success of a balanced energy approach.

For example, SoCalGas partnered with LINC Housing Corporation, Southern California Edison, and others to implement deep, near-zero energy retrofits at The Village at Beechwood, a 100-unit low-income multifamily property in Lancaster, CA. Residents of low-income housing in California often carry the brunt of allotting a higher proportion of their income to utility costs compared to other income groups. This is primarily because owners of low-income multifamily housing lack the ability to raise rents and reinvest in a property's energy efficiency. This project at The Village at Beechwood has demonstrated and reported cost-effective Very Efficient Retrofit packages and the integration of solar technologies in a low-income multifamily project, reducing annual electricity use by 92%, and natural gas by 50%[10].

Conclusion

SoCalGas strongly believes that a diverse energy portfolio which includes multiple fuels and technologies is needed to meet California and Santa Barbara County's energy needs and environmental policies in a cost-effective and feasible manner.

SoCalGas appreciates your consideration of these comments and recommendations. If you or your staff would like to meet and discuss some of the options we suggest, I am happy to arrange a meeting with SoCalGas subject-matter experts. We look forward to continuing to work with SBCAPCD staff on these significant mitigation policy goals and objectives.

Sincerely,

Colby Morrow

Colby Morrow
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Southern California Gas Company

[7] https://www.eia.gov/todayinenergy/detail.php?id=32172
[8] http://www.scottmadden.com/wp-content/uploads/2016/10/Revisiting-the-Duck-Curve_Article.pdf
[9] https://www.nrel.gov/docs/fy16osti/65023.pdf
[10] http://aceee.org/files/proceedings/2016/data/papers/1_468.pdf