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

Re: Written Comments by Southern California Gas Company and San Diego Gas & Electric Company on the 2030 Target Scoping Plan Update Concept Paper

I. Introduction

Dear Ms. Sahota,

Southern California Gas Company (SoCalGas) and San Diego Gas & Electric Company (SDG&E) appreciate the opportunity to submit these comments on the California Air Resources Board's (ARB) 2030 Target Scoping Plan Update Concept Paper. We offer specific comments on the proposed concept scenarios, as well as overall policy comments on the 2030 greenhouse gas (GHG) reduction target.

II. High-Level Policy Comments

SoCalGas and SDG&E support continuation of a Cap-and-Trade Program and the Low Carbon Fuel Standard (LCFS) to help meet California's environmental and economic goals while minimizing unfavorable ratepayer impacts. These market-based mechanisms provide compliance flexibility for regulated industries, as well as access and incentives to identify the lowest cost GHG emission reduction opportunities across the economy. Additionally, the State has already invested heavily in the Cap-and-Trade Program, which is successfully driving long-term investment in cleaner fuels and more efficient use of energy.

In furtherance of our work with the State to advance California's clean energy future, we provide the following input on the Scoping Plan's 2030 Targets:

- **Cap-and-Trade and the Low Carbon Fuel Standard should continue post 2020** – The State should extend current market mechanisms used to encourage GHG reduction. Cap-and-Trade should continue to be one of the primary mechanisms to ensure flexibility in emission reduction approaches. Free allowances should continue to be allocated to

utilities under the current consignment schedule and escalation rate for the benefit of ratepayers. Additionally, the Low Carbon Fuel Standard (LCFS) should be extended to 2030 or beyond.

- **Straight-line to 2050** - The 2030 goal should be a 35% reduction over 1990 emission levels, which reflects straight line progress from 2020 to 2050 goals. In addition, the 1990 emissions levels used to set the target should consider all emissions currently in the GHG inventory. An alternative would be a "mid-term" goal of 40% reduction by 2035 which is halfway between 2020, the AB 32 target and 2050, the long term goal of a standing Executive Order. Studies show this approach to be a far more achievable pathway with more moderate cost impact on utility ratepayers, allowing more time for needed technologies such as Power-to-Gas (P2G) to develop.

- **California-funded GHG reductions should be counted** - GHG accounting should be clear that all California-funded GHG reductions should be counted whether occurring in-state or out-of-state. This would include generation from out-of-state renewables contracted by California electric load-serving entities, in-state renewable generation that is exported during overgeneration events, approved cap-and-trade offsets, and GHG reductions in other linked jurisdictions, if applicable.

- **SLCP 40% Reduction Goals should focus on Organic Sources** - Each of the four concepts presented relies on the ARB Short-Lived Climate Pollutant (SLCP) Proposed Strategy goal of reducing methane emissions by at least 40% below 2013 levels by 2030. SoCalGas and SDG&E believe that the State should focus on reductions from the dairy, agriculture and landfill sectors, as these contribute over 75% to California's methane emission inventory. We support ARB's strategy of capturing methane from these sectors to be used as a transportation fuel, injected into natural gas pipelines, and used to generate on-site renewable electricity and heat. Increasing the use of Renewable Natural Gas (RNG) as a transportation fuel would not only reduce methane emissions from organic waste streams, but also reduce black carbon by displacing diesel in older, conventionally fueled heavy-duty vehicles.

- **Implement transparency and legislative oversight regarding cost-effectiveness** - An annual report should include a cost effectiveness evaluation based on a cost per GHG ton reduced metric consistent with AB 32's cost-effectiveness requirement. Including this additional information in the annual report will provide the Legislature with an opportunity to assess the benefits that the program is producing and readjust the program if necessary to utilize funding in the most efficient manner possible.

- **Equitable treatment across and within sectors** - All sectors, and entities within sectors, must contribute to and have equitable responsibility for, the GHG emission reduction effort in order to achieve the most efficient and effective net carbon reductions possible. Earlier achieved voluntary reductions should also be recognized. A disproportionate obligation should not be imposed on any one economic sector, or any portion of an economic sector.

- **Safety valves must be established to protect against unintended consequences** - Safety valves should be included in the Scoping Plan Update to ensure that California's GHG reduction program is continuously monitored based on key variables that will trigger warnings about impacts on California's residents and businesses:

    - **Transportation Sector Progress** – If the transportation sector is not making sufficient progress at reducing GHG emissions, the deadline should be revisited to hold the transportation sector accountable for its part of the GHG reduction goal, so that other sectors of the economy do not have to be burdened with emission reductions that should be occurring in the transportation sector.

    - **Economic Impact** – If California's economy is suffering, then this state policy must be revisited. The benefits of GHG reduction need to be balanced with the cost and economic impact of GHG reduction policies to ensure California's economy stays healthy as these policies are implemented. The impact to California's economy would likely be noticed in multiple ways, two of which would be increases in the cost of electricity and in the unemployment rate.

    - **Validated CO_2 Reductions In-State/National Action** – If there is no federal action taken on carbon reductions, then the state program should be revisited. There should be a measurement of whether or not California's policies are actually achieving net GHG reductions and not just causing GHG emission sources to move outside the state.

III. Detailed Comments on Concepts

Concept 1: Complementary Policies with a Cap-and-Trade Program

SoCalGas and SDG&E support the continuation of a Cap-and-Trade Program with reasonable declining caps to help meet California's environmental and economic goals while minimizing unfavorable ratepayer impacts. Cap-and-Trade provides compliance flexibility for regulated industries, as well as access and incentives to identify the lowest cost GHG emission reduction opportunities across the economy. Likewise, we also support the continuation and increase of the LCFS to achieve a 10% reduction in fuel carbon intensity by 2020, and further reductions through 2030. These programs help California achieve co-benefits of reducing GHG as well as criteria pollutants that directly impact public health.

A. Low Carbon Fuel Standard

Since its adoption in 2010, the LCFS has been instrumental in creating price parity between alternative fuels and fossil fuels, such as gasoline and diesel. This parity has resulted in a 36 percent increase in the use of clean fuels, $650 million being invested in clean fuel production, the avoidance of 16.6 million tons of carbon pollution, a savings of $1.6 billion in health care costs, and the displacement of 6.6 billion gallons of petroleum fuels. There are not only

quantifiable benefits but also benefits that cannot be measured. This program has been the catalyst for companies and people to innovate in the energy sector.

The LCFS program has been crucial in spurring the development of low-carbon fuels in California by providing clear market signals to producers that their investments in research and development will yield returns in the long-run. It has increased demand for alternative fuels, such as renewable natural gas, leading to new technologies to produce, deliver, and use the fuel. For example, in 2015, encouraged by the increasing availability and decreasing price of alternative fuels, Big Blue Bus, the transit agency of the City of Santa Monica, switched its bus fleet to 100% renewable natural gas, reducing its fleet's carbon footprint by an estimated 8,000 tons per year. Innovations like this will help California achieve its ambitious climate goals such as those set forth in the 2030 Target Scoping Plan.

B. Mobile Source Strategy: Technology and Fuel Mandates

Concept 1 includes various proposed technology and fuel targets within the Mobile Source Strategy. However, SoCalGas and SDG&E believe it would be unnecessary and likely counterproductive to pre-select specific technologies and/or fuels as Mobile Source Strategy goals as compared to establishing desired outcomes, such as NOx or GHG emission reduction targets. As an example, the technology mandate proposed for the Advanced Clean Transit (ACT) regulation requires the purchase of "zero tailpipe emission" urban transit buses which could potentially increase transit costs statewide by $5 to $10 billion. [1] By contrast, both the 90% NOx emission reduction goal and the 80% GHG emission reduction goal established in the ACT regulation proposal can be ***met and exceeded sooner*** without significant incremental costs through the use of "near zero" technologies such as low NOx engines and RNG.

The ARB Board has also supported the movement away from technology mandates in favor of performance based goals at recent board meetings reviewing the ACT regulations, however it does not appear that board member concerns have been reflected in the ACT regulation and Mobile Source Strategy. SoCalGas and SDG&E encourage ARB staff to forego technology mandates and, instead, implement "fuel neutral" policies to encourage all technologies and fuels to compete in order to achieve ***performance based goals*** such as NOx and GHG emission reductions.

C. Medium and Heavy-Duty Vehicles and the Freight Sector

SoCalGas and SDG&E are in favor of the U.S. Environmental Protection Agency (EPA) and the Department of Transportation's National Highway Traffic Safety Administration's (NHTSA) jointly proposed national program that would establish second-phase GHG emissions and fuel efficiency standards for medium- and heavy-duty vehicles. Technology advancements in engine development are progressing at a rapid pace.

As detailed in the *Game Changer Technical Whitepaper* by Gladstein, Neandross & Associates (GNA), a heavy-duty natural gas engine is now commercially available which meets ARB's

[1] As presented in an economic analysis by the California Transit Association at the February 9, 2016, ACT Regulation Transit Sub-Group meeting.

lowest-tier optional low-NOx emission standard at 0.02 g/bhp-hr NOx.[2] 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 GHG.

Since ARB has already determined that heavy-duty electric and fuel cell electric vehicles will not be widely available in the next several decades,[3] it is clear that RNG provides the single best opportunity for California to achieve its air quality and climate change goals in the on-road heavy-duty transportation sectors in the near term. Equally important, major reductions of cancer causing toxic air contaminants can immediately be realized in disadvantaged communities adjacent to freeways and areas of high diesel engine activity, where relief is most urgently needed.

This combination of ultra-low NOx engines with RNG in the freight sector would also help ARB accomplish its goal of "deploying over 100,000 freight vehicles and equipment capable of zero emission operation and maximize near-zero freight vehicles and equipment powered by renewable energy by 2030," as articulated in both the Concept Paper and the Draft California Sustainable Freight Action Plan (CSFAP).

D. Advanced Clean Transit: Near-Zero Emission Bus Fleets

The Concept Paper proposes a zero-emission bus requirement under ACT regulations. However, the results of a recent study commissioned by Los Angeles County Metropolitan Transportation Authority (LA Metro) found that the use of RNG and low-NOx CNG engines is more effective at reducing GHGs than battery electric or fuel cell powered buses that are commercially available today. In addition, emission reductions of both GHG and NOx from low-NOx engines and RNG are an order of magnitude more cost-effective than reductions from electric or fuel cell buses. [4] Other municipalities have already made the move to RNG in their bus fleets, such as Santa Monica Big Blue Bus and San Diego Metropolitan Transit System. As low-NOx engines and low-carbon RNG are all available now to help accomplish California's goals in a timely manner, we urge ARB to specifically include them as a viable strategy in the next iteration of the AB 32 Scoping Plan Update.

Concept 2: Ambitious Complementary Policies without Cap-and-Trade; a Focus on Industrial Sources

Concept 2 proposes entity level GHG declining caps for industrial sources as an alternative to Cap-and-Trade. This would require establishing a baseline annual GHG emissions level for each regulated entity in permits, and frequent program evaluation and adjustments. Implementing and enforcing such a regime would have a large impact on state resources, beyond the cost-

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

[3] 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.

[4] Los Angeles Metro Technology Assessment, June 30 2016.

effectiveness of resulting GHG reductions. In addition, this would not include a statewide limit on GHG emissions, and could possibly require further programs if the 2030 target is still not achieved.

As emphasized in the staff presentation to the ARB Board on June 23, 2016, the objectives of the Scoping Plan include providing a flexible framework for implementation, and promoting resilient economic growth. However, requiring California's industries to meet facility emissions caps would not allow the same compliance flexibility to achieve GHG reduction goals at lower overall costs when compared to Cap-and-Trade. An emission cap policy would not take into consideration that different facilities face different compliance options and associated costs. Further, this command-and-control type regulation does not provide an incentive for industry to innovate by going beyond required reductions, as does a Cap-and-Trade model.

Concept 3: Ambitious Complementary Policies without Cap-and-Trade; a Focus on Transportation

Concept 3 focuses on reducing GHG emissions from the transportation sector as an alternative to Cap-and-Trade. This would be accomplished with a goal of 3.5-4.5 million zero emission and plug-in hybrid light duty electric vehicles by 2030. As we discussed above in our response to Concept 1, these technology and fuel mandates will not result in the same innovation to enable GHG reductions unlike performance-based goals. We urge ARB to reconsider its pre-selection of zero emission and plug-in hybrid vehicles as the only avenue for meeting this proposed GHG milestone. Further, we are concerned about the source of sustainable funding to incentivize businesses to take risks in investing in such an aggressive measure. Procuring, purchasing and providing infrastructure support for several million new electric vehicles in the next 14 years is very ambitious. SoCalGas and SDG&E would like to see more details about the implementation of such a measure in the transportation sector between now and 2030.

Similar to Concept 2, Concept 3 would still rely on additional programs, such as the RPS or facility level caps, to comply with the Clean Power Plan. SoCalGas and SDG&E recommend continuing California's existing Cap-and-Trade Program to streamline compliance with state and federal GHG reduction goals, in addition to the compliance flexibility benefits described previously.

Concept 4: Complementary Policies with a Carbon Tax

Concept 4 proposes a carbon tax in lieu of the Cap-and-Trade Program. Putting aside the tremendous burden on compliance entities to unwind their positions in allowances and offsets, and the wasted resources devoted by ARB to develop and administer the Cap-and-Trade Program since its inception, a carbon tax would make the achievement of ARB's GHG reduction goals more uncertain.

A carbon tax requires legislators to set the financial cost of carbon regulation with no idea if the tax rate is sufficient to attain the necessary reductions. It also does not result in the lowest cost

GHG reduction measures adopted by compliance entities as encouraged by the market-based mechanism of Cap-and-Trade. In addition, if these decisions are driven by State budget requirements, including funding needs for newly adopted subsidy programs, the budget requirements themselves could drive the tax to unreasonably high levels. A Cap-and-Trade Program adopts a cap and the economic cost of the Cap-and-Trade Program is whatever price becomes necessary to meet that cap, based on supply and demand.

In addition, California utilities and other businesses are subject to a plethora of command and control regulations as well as the Cap-and-Trade Program, and a carbon tax could be the final straw that drives businesses out of the state.

While we understand ARB's desire to explore various options, we do not believe a carbon tax can cost effectively reduce GHG emissions, especially when the tremendous amount of resources to implement the Cap-and-Trade Program is taken into account. If the carbon tax option is being seriously considered, we would seek a more detailed analysis into the specifics of a carbon tax, and a quantification of the already expended Cap-and-Trade Program costs.

IV. Alternative Concept: Low-Carbon Gas Pathways

In recent years, SoCalGas has been reexamining the long-term role for natural gas in a low carbon energy mix. We engaged Energy + Environmental Economics (E3) to look at *Decarbonizing Pipeline Gas to Help Meet California's 2050 Greenhouse Gas Reduction Goal.*[5] In the scenarios explored in this E3 study, deep decarbonization of the natural gas supply would result in, by 2050, more than 50% of our natural gas supply coming from RNG, also known as biomethane. On this premise, E3 concluded:

- Pipeline de-carbonization works together with renewable electricity and electrification strategies towards GHG reduction objectives.
- Decarbonized pipeline gas reduces emissions in sectors that are otherwise difficult to electrify, including heavy duty vehicles; certain residential and commercial end uses, such as cooking, and existing space and water heating; and certain industrial end uses, such as process heating.
- Decarbonized gas in the form of power to-gas (P2G) can play an important role in integrating variable renewable generation by producing gas, and then storing it in the existing pipeline distribution and storage infrastructure for when it is needed to serve residential and commercial customers or for electricity generation.
- A transition to decarbonized pipeline gas would enable continued use of the State's existing gas pipeline distribution network, eliminating the need for constructing new energy delivery infrastructures to meet 2050 GHG targets, such as dedicated hydrogen pipelines or additional electric transmission and distribution capacity.
- Decarbonized gas technologies help diversify technology risk associated with heavy reliance on a limited number of decarbonized energy carriers, and would allow

[5] SoCalGas' initial work with E3 was on the 2050 target to reduce GHG emissions by 80% below 1990 levels. We had assumed a straight-line progression to the 2050 target. So, by 2030, we would achieve a 34% reduction in GHG emissions. We would hit the 40% GHG reduction target between 2032 and 2033.

consumers, businesses and policymakers greater flexibility and choice in the transition to a low-carbon energy system.

In the electric generation sector, natural gas would have a long-term and significant role to decarbonize electricity generation through the production of RNG. P2G can also aid in managing the intermittency of renewable sources like wind and solar. Production of RNG from electricity offers the opportunity to increase consumption in low net load periods. P2G creates a new and potentially cost-effective beneficial use for electricity that can be stored in existing natural gas infrastructure and delivered on demand.

By avoiding proscriptive mandates and developing appropriate policies, a possible path forward may be to displace a significant amount of our statewide natural gas usage with RNG derived from landfills, wastewater treatment facilities, dairies, agricultural waste, urban waste, and woodland waste that would otherwise be discarded. In addition, non-arable land and non-potable water could be used to grow switch grasses and algae that would be used to produce RNG. Carbon capture and carbon transformation may provide another path forward. We recommend that ARB investigate the potential development of all of these RNG resources which can provide significant environmental benefits.

SoCalGas is actively working to support each of these short-, mid-, and long-term clean energy solutions to reduce GHG emissions as part of our continued leadership in the natural gas research and development sector. For example, SoCalGas has signed an agreement with the NREL to analyze the California Independent System Operator ("CAISO") grid constraints and determine where there will be deployable electricity in the future to site P2G facilities. CAISO's "duck curve," shows the future of when generation will occur and predicts times with excess generation capacity and low demand, presenting an opportunity to implement P2G to create a much needed zero or near-zero carbon energy storage medium.

V. Conclusion and Supporting Comments

This is an exciting time in the energy industry with many new technologies and tools being developed and adopted, including those related to the use of natural gas, low- and no-carbon gas supply and the statewide gas grid and its energy storage assets. The State should continue to acknowledge the GHG reduction potential of natural gas, the immediate availability of the natural gas system, and the benefits to all Californians as we move forward in the process. Whatever policy is adopted, it should be flexible enough to allow the best ideas to be deployed, and not lock in prescriptive mandates or specific technologies that may seem attainable, but are ultimately unachievable in the required timeframe and/or cost prohibitive.

As an innovation leader, California has always been at the forefront of improving our environment. While climate change policies are necessary to secure the continued health of our environment for future generations, California must move forward with not only policy leadership on GHG emissions reductions, but also policy leadership on how to accomplish reductions in a manner that continues to grow our economy.

SoCalGas is looking forward to reviewing the Draft Scoping Plan when it is released later this year, and is eager to help implement what we hope to be a cost-effective and flexible strategy to reach the State's ambitious goals.

Sincerely,

Jerilyn López Mendoza

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