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Mr. Mike Waugh
Chief, Transportation Fuels Branch
California Air Resources Board
1001 "I" Street
Sacramento, CA 95814

**RE: Southern California Gas Company Comments on ARB's Low Carbon Fuel Standard
Reconsideration – CA-GREET Model Update as Presented at the August 22, 2014 Workshop**

Dear Mr. Waugh

The Southern California Gas Company (SoCalGas) appreciates the opportunity to comment on the CA-GREET model update process as presented at the August 22 workshop. While we understand that the information presented in the workshop is preliminary, we are alarmed that the California Air Resources Board (CARB) is considering making significant changes to the CA-GREET model without giving industry time to understand and discuss the proposed changes to the model in a technical workshop. We will not be able to provide meaningful input unless CARB explains the assumptions and data behind the proposed changes. Also, many methane leakage studies are currently underway. These studies are likely to provide significant new information in the next year that must be considered as part of the model update process. Furthermore, CARB must be careful not to make selective updates that favor some fuels over others. Lastly, SoCalGas has some initial concerns with the assumptions behind some of the proposed updates.

Additional explanation and review is necessary

A transparent and robust discussion of the data and assumptions ARB is using is critical to developing support for the proposed model update and maintaining confidence in the LCFS program. We are very concerned that a rushed update process that doesn't allow for meaningful participation from industry will result in increased uncertainty and may lead companies to delay or halt investment plans they have developed to comply with or support the LCFS. Instead, we encourage a collaborative rollout of the GREET Model, which will result in a more robust model less prone to technical fault. As an example, under gaseous hydrogen production, the GREET model includes criteria and GHG emissions from non-combustion processes. The model does not specify the types of processes involved, moreover, these values are hard-coded in the model with no reference on how they were derived. The non-combustion emissions are not insignificant – they are on the same order of magnitude as the combustion-based sources. Upon inquiry, Argonne revealed that these values came from proprietary data and therefore are not referenced. Without understanding the processes, application of NOx control technologies is difficult if not impossible when developing a region specific lifecycle NOx estimate. A collaborative process of model development can improve the overall model performance.

Due to the significant affect that these issues and the related assumptions can have on fuel pathway emissions, SoCalGas requests that these issues be addressed in a technical workshop prior to the beginning of the 45-day comment period.

Use the best, most recent and most relevant data

At the ARB Technology meeting on September 3, 2014, ARB staff noted 1) the considerable variation in different studies for calculating methane leakage; 2) the importance of segment, regional and California-specific data; and 3) the significant volume of information that is expected soon, but is not yet available for review and consideration. SoCalGas agrees with all of these points and encourages the LCFS staff to take them under consideration.

With respect to the use of relevant data, the methane leakage rates assumed in the GREET 2013 model, and proposed to be adopted into CA-GREET 2.0, reflect national averages. California natural gas infrastructure is newer than most other regions in the country, resulting in lower Transmission and Distribution leak rates than assumed in the national figures. Also, California receives the majority of its natural gas from within California and four other regions in the U.S. An accurate assessment of the upstream emissions associated with natural gas use in California should recognize the unique attributes of various gas producing regions, in much the same way that the OPGEE model identifies different carbon intensities for petroleum derived from different regions and geologies. Regional differences extend to the regulatory environment. For example, Colorado's recent regulations requiring greater than 95% control of VOCs and other hydrocarbons at the oil and gas production stage are expected provide similar levels of control of fugitive methane emissions.¹

In terms of new information, there are multiple efforts currently underway to provide greater transparency on the factors that contribute to the overall methane leakage rate and to identify regional differences. The Environmental Defense Fund (EDF) is overseeing a series of studies on each area of the natural gas supply chain, in order to develop a fact-based estimate of the methane leakage rates for various parts of the natural gas system. In these studies, direct measurements of methane emissions are taken at the actual sources on the ground, rather than estimated by applying an emission factor to a component count. Consequently, the results from these EDF studies are apt to be more precise as well as better representative of the industry.

These studies will significantly improve the basis for estimating fugitive methane emissions. The results of these studies are expected soon, but potentially not before ARB completes its current LCFS rulemaking schedule. By adopting a revised CA-GREET model and establishing new CIs for fuels in the absence of these data, ARB runs the risk of finding the model and resulting CIs out of date soon after adoption, creating a need for a subsequent update. Such frequent revisions undermine the efficacy and stability of regulatory programs, particularly those that rely on the market dynamics of credit trading and long term investments as is the case with the LCFS.

SoCalGas believes the findings from all of these more comprehensive and recent studies will not only better inform CARB in its efforts to develop sound policies for addressing methane emissions from the natural gas supply chain, but also foster a more accurate public understanding of methane leakage rates.

¹ Colorado Department of Public Health and Environment, "Revisions to Colorado Air Quality Control Commission's Regulation Numbers 3, 6, and 7 Fact Sheet", March 2014.

SoCalGas, therefore, requests that CARB consider the findings and results of these studies before finalizing the CA GREET model update.

Changes to CI for natural gas will have a material impact on the CI of other clean fuels

Several transportation fuels rely on natural gas as a feedstock or for power generation. Two of these fuels, hydrogen and electricity were not included in the 8/22 workshop presentation. If ARB updates the CI for natural gas (CNG, LNG, RNG), then it must also update the CI for fuels impacted by natural gas at the same time. To do otherwise would distort the market by favoring some fuels over others.

SoCalGas requests that CARB update the CI for all fuels impacted by natural gas at the same time, using the best data as described above.

Initial concerns with proposed update to CA GREET model

ARB staff recently presented detailed information on fugitive methane emissions as a part of the Fuels portion of the Technology Assessment workshop on September 3. Many of the issues raised by ARB staff are not adequately addressed by adopting the current GREET 2013 model assumptions into CA-GREET 2.0 but have a significant impact on the estimated carbon intensity of natural gas, as well as all fuels that use natural gas as a feedstock. It is important that these issues be considered fully in any update to the LCFS.

Additionally, it is unclear how ARB will address California-specific assumptions made in CA GREET v1.8b and that differ significantly from assumptions in GREET 2013. For example, the calculation methodology between the CA GREET v1.8b and the (Argonne) GREET 2013 models are very different. CA GREET v1.8b (based on the outdated Argonne version of GREET v1.8b) assumes default natural gas leak fractions for each stage of the NG lifecycle, whereas the new GREET 2013 uses much more recent published data. The leakage rates for traditional NG recovery and processing do not differ much between the two models. However, GREET 2013 added a new “Shale gas recovery” option which has significantly higher (~70%) methane leakage rate than the traditional method of NG recovery. Depending on the ratio of traditional versus shale gas recovery, the total methane leakage (on a lifecycle basis) can be very different. Also to note, CA GREET v1.8b has adjusted the methane leakage rate in the “NG Transmission and Distribution” stage downward to account for California specific operations. The original Argonne default had a NG leak fraction of 0.27% + 0.18%, but ARB adjusted to 0.08% in the CA GREET v1.8b model.

We look forward to discussing this issue and others, in detail, with ARB staff at one or more technical workshops, *before the 45-day comment period begins.*

Thanks for the opportunity to submit these comments.

Best regards,



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