E&B
NATURAL RESOURCES

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Transmitted electronically to: LCFSWorkshop@arb.ca.gov

California Air Resources Board (CARB)
1001 I Street
Sacramento, CA 95814

Subject: LCFS Workshop 10/14/20, Stakeholder Feedback – OPGEE Concerns

Dear Sir/Madam,

My name is Jimmy Schloss and I'm an engineer with E&B Natural Resources. I participated in the recent LCFS Workshop but didn't have a chance to comment. I am submitting some concerns with the current OPGEE model.

OPGEE and Emissions Factors for Supertankers and Trucks

E&B has concerns about the accuracy of equivalent CO_2 emissions from transportation modes including by super tanker and truck in the current OPGEE model. A basic, preliminary evaluation was performed using publicly available data on fuel type and combustion/emissions factors. In addition, publicly available data was used for Very Large Crude Carriers (VLCC) including their transportation speed and available fuel consumption factors.

A preliminary evaluation of shipping speed, fuel consumption, and equivalent CO_2 emissions was performed on VLCC supertankers as this shipping vessel is commonly used in importing crude oil into California. The shipping speeds used in this analysis those cited directly on different VLCCs. The preliminary evaluation suggested that OPGEE's equivalent CO_2 emissions could be up to 1.5 to 2.7 times less than actual emissions in the "g CO_2e/MJ" data output at these shipping speeds.

There are additional concerns on OPGEE's total emissions factors for shipping. OPGEE currently only includes the emissions from shipping crude oil to its shipping destination. OPGEE does not include the shipping emissions from these ships on their return voyages to its point of origin. These emissions must be factored in as they are part of the overall process.

In addition, it is unclear whether or not OPGEE is properly accounting for all emissions associated with shipping including the emissions generated from the time a tanker is waiting offshore to pass through canals, staging to port, or in port directly. These factors must be accounted for as these emissions are significant especially when ships are not connected to a port's electrical lines that would fully power it. For instance, a recent Los Angeles Times article noted that ships and commercial boats in Southern California are expected to be the top source of smog in 2023 and that " In one 24-hour period in port, a single cruise ship can burn enough fuel oil to equal the pollution from 10,000 cars, according to air quality officials (Barboza, 2020)."

In addition, a similar analysis was performed for crude transport from semi-trucks. A medium to heavy duty truck powered by Diesel fuel was considered for this calculation. The CO_2e/MJ data output by OPGEE was 2.8 times higher than calculated in this preliminary evaluation.

Qualitative Aspects of Environmental Benefit not Reflected in OPGEE

Like all numerical models, OPGEE is a quantitative tool as opposed to a qualitative tool and California environmental standards are consequently not properly accounted for in its outputs. California oil and gas producers work hard to meet and even exceed California's rigorous environmental standards which are for all practical purposes the highest environmental standards in the world.

One example of this the high standards on water quality regulations associated with oil and gas production. In California, oil and gas companies are regulated by State and Regional Water Boards in addition to CalGEM to process, treat, and dispose of produced water. These agencies ensure that no harm is done to underlying sources of drinking water and surface water. These activities are only approved after rigorous reviews and public input all to ensure that there is no harm to these aquifers or surficial features. It is difficult to even find any published environmental and water quality standards on foreign sources. There is a clear benefit to the environment when oil and gas is extracted in California. The environmental benefits when oil and gas extracted in foreign nations are uncertain at best.

The OPGEE model should account for these environmental benefit factors. There are numerous existing studies which compare and rank a country's overall environmental performance which have been used to develop metrics. One such metric is the Environmental Performance Index (EPI) developed by Yale Center for Environmental Law & Policy at Yale University (Wendling et al., 2020). The EPI is calculated using numerous environmental performance rankings from third-party data sources such as air quality and pollution emissions, water quality and water resources, waste management, and ecosystem services. The individual environmental performance rankings are based on a 0 to 100 scale and is used to calculate the overall EPI. Environmental indices and metrics could easily be integrated in the CI calculation within OPGEE.

Environmental indices could easily be integrated into OPGEE using the following approach. First, a standard environmental performance system, such as EPI, would be chosen where the annual rankings would be coded into the model and linked to the country producing oil and gas. Environmental performance would then be factored into the overall carbon intensity (CI) calculation either by multiplying CI by environmental performance or assigning the environmental performance as a variable to CI. Countries with lower environmental performance metrics would yield a lower CI whereas countries with higher environmental performance metrics would yield a higher CI.

At a minimum CARB should specifically note within the LCFS Crude CI table that the CI scores do not reflect actual emissions, that default scores and average values are used, especially for out-of-state and country producers.

We appreciate the presentations provided and would like to thank you for the opportunity to provide stakeholder input during this process.

Best Regards,

Jimmy Schloss, PE, PG
Regulatory Engineer

Attachments: References as noted below

References:

Barboza, Tony. "Port ships are becoming L.A.'s biggest polluters. Will California force a cleanup?" Los Angeles Times. 1/3/20. Available online at https://www.latimes.com/california/story/2020-01-03/port-ships-are-becoming-la-worst-polluters-regulators-plug-in

Wendling, Z. A., Emerson, J. W., de Sherbinin, A., Esty, D. C., et al. (2020). 2020 Environmental Performance Index. New Haven, CT: Yale Center for Environmental Law & Policy. Available at: www.epi.yale.edu