



Sonoma Technology, Inc.
Innovative Environmental Solutions

April 23, 2018

Simon Mui, Ph.D.
Senior Scientist and Director, California Vehicles and Fuels
Natural Resources Defense Council (NRDC)
111 Sutter St., 20th Floor
San Francisco, CA 94104

Re: *Review of the California Air Resources Board (CARB) Document, Appendix G, Draft Supplemental Disclosure Discussion of Oxides of Nitrogen Potentially Caused by the Low Carbon Fuel Standard Regulation*, released March 6, 2018

Dear Dr. Mui:

Thank you for giving me the opportunity to assist NRDC in its review of CARB documents related to the Low Carbon Fuel Standard regulation. This letter provides statements that highlight the findings of my review; it also includes descriptions of my background and Sonoma Technology, Inc. (STI).

Statements Regarding the Draft Appendix G CARB Document

In its March 6, 2018, draft disclosure discussion regarding oxides of nitrogen (NOx) potentially caused by the Low Carbon Fuel Standard (LCFS) regulation, CARB has likely over-predicted the NOx emissions potentially caused by the LCFS regulation. The following points illustrate why the NOx emissions estimates are likely over-predicted. Since CARB estimated the potential increased NOx emissions due to biodiesel use, the points presented here focus on biodiesel. The points presented here also focus on issues that relate to calendar years 2012, 2015, and 2016, since those are the years for which CARB estimated that the LCFS program resulted in past potential NOx emissions increases due to biodiesel use. Page citations refer to CARB's Appendix G March 6, 2018, document.

1. **CARB selected the one analysis method, from among the three methods it employed, that generated the highest estimate of potential NOx emissions due to the LCFS.** CARB used three methods to estimate potential NOx impacts, referring to them as Methods I, II, and III.
 - a. Method I, a statistical analysis, evaluated California and U.S. biomass-based diesel fuel use, to discern whether the LCFS program had a statistically significant impact on biodiesel fuel use in California. CARB found, "Since the statistical models that staff attempted did not yield statistically significant results for biodiesel, staff could not find a correlation between biodiesel and LCFS credit prices through statistical modeling for the historical period [2009-2016]" (pp. G-1-2, G-1-7). In other words, Method I analyses did not find a significant impact on biodiesel use in California due to the LCFS.

- b. In Method II, CARB weighed oil prices, the federal Renewable Fuel Standard (RFS), the LCFS, and federal tax credits to apportion the fraction of financial incentives coming from federal compared to California policy to incentivize use of biodiesel. CARB found that, for the period 2011-2016, LCFS program incentives accounted for from zero to 31% of the overall incentives in place for biodiesel (p. G-18).
 - c. Under Method III, the approach that yielded the most conservative outcome, CARB added consideration of fuel transportation costs to its Method II approach. With Method III, CARB found that, for the period 2011-2016, LCFS program incentives accounted for from zero to 83% of the overall incentives in place for biodiesel (p. G-18). Staff used Method III as the basis for the NOx analysis, thereby picking the method that resulted in the highest assessment of LCFS-related NOx emissions from biodiesel use. CARB has acknowledged that its approach likely overestimated emissions: "...the estimates potentially overstate the impacts attributable to LCFS, and should be viewed as an upper-bound estimate of any potential impacts" (p. G-4).
2. **There could be a bias built into the Method III treatment of transportation cost that results in over-assigning causality to the LCFS.** Method III assesses whether the LCFS credit value is greater than fuel transportation cost; if it is, it assigns causality to the LCFS program for biodiesel produced and shipped to California. However, it is reasonable to assume that if fuel transportation costs to other destinations were higher than to California, then there would be a preference to ship product to California, all else held equal. Comparative data on transportation costs to destinations outside California were not included in the CARB discussion document. If the agency included such a comparison, it could show Method III may over-assign causality to the LCFS program.

In summary, CARB examined how much California biodiesel use can be attributed to the LCFS program. Using three analysis methods, CARB found varying results, but chose the analysis method (Method III) that maximized estimated potential NOx emissions resulting from biodiesel use due to the LCFS. In addition, the analysis method selected (Method III) may itself include bias that may overestimate the fraction of California biodiesel use attributed to the LCFS. These points suggest that the NOx emissions estimated by CARB as being associated with biodiesel use in California, specifically resulting from the LCFS program, are overestimated for 2012, 2015, and 2016, past years for which CARB estimated the LCFS program resulted in potential NOx emissions increases due to biodiesel use.

Qualifications and Background

1. I have over 30 years of professional air quality-related experience, including serving for four years as the Mobile Sources Section Chief for the U.S. Environmental Protection Agency, Region 9; for approximately 12 years as the Program Manager for the U.C. Davis-Caltrans Air Quality Project, and for over 22 years at STI, an air quality research firm. I have also taught transportation-related air quality issues for many years as an Adjunct Associate Professor at the University of Hawaii, and I have taught transportation policy and planning at U.C. Davis.

2. My areas of expertise include (a) transportation-related air quality issues, including on- and off-road vehicle activity, emissions, and related impacts on air quality; (b) near-road air pollution issues; (c) vehicle inspection and maintenance; and (d) research program oversight.
3. I currently serve as Vice President and Chief Scientist for Transportation Policy and Planning at STI. In addition, under the Transportation Research Board (TRB) of the U.S. National Academies of Sciences, Engineering, and Medicine, I currently serve as the Chair of the TRB Air Quality Committee.
4. I have a Ph.D. in environmental policy analysis from the University of Wales, a Masters degree in Public Policy from Harvard University's John F. Kennedy School of Government, and a Bachelors degree from Cornell University.

About STI

STI staff have been contributing continuously to the science and understanding of air pollution for more than 35 years. Founded in 1982, STI is an employee-owned firm of about 60 scientists, engineers, and support staff providing air quality and meteorological research and services. Our headquarters is in Petaluma, California; however, we also have field study and data analysis staff located in southern California. Our transportation-related air quality work includes a range of federal, state, and local support. Examples include providing TRB Air Quality Committee leadership team support under the U.S. National Academies, running the research program for an eight-agency transportation pooled fund on near-road air quality, and routinely providing training classes to help analysts complete transportation-related particulate matter (PM), carbon monoxide (CO), and mobile source air toxics (MSATs) analyses to address the National Environmental Policy Act (NEPA), California Environmental Quality Act (CEQA), and transportation conformity. STI scientists have experience with PM, CO, MSAT, and greenhouse gas (GHG) emissions and air quality modeling assessments; health impacts analysis support; on-road vehicle and construction emissions assessments; mitigation; GIS-based spatial analyses; the development and updating of analysis tools and guidance manuals; smart growth and transportation control measure analysis; strategic planning; interagency consultation; and onsite training and education.

Sincerely,

A handwritten signature in black ink, appearing to read 'Doug Eisinger', with a long horizontal flourish extending to the right.

Douglas Eisinger, Ph.D.
Vice President and Chief Scientist
Transportation Policy and Planning