THE EARTH'S BEST DEFENSE

May 28, 2014

Mike Waugh, Chief, Transportation Fuels Branch
California Air Resources Board
Headquarters Building
1001 "I" Street
P.O. Box 2815
Sacramento, CA 95812

Dear Mr. Waugh:

We thank you for the opportunity to respond staff proposals at the April 18th, 2014 Low Carbon Fuel Standard (LCFS) workshop with respect to the petroleum refinery and crude oil provisions.

As supporters of the LCFS and California's clean energy and climate law, AB32, we recognize that significant reductions are necessary from our transportation sector, which contributes nearly 40% of the state's greenhouse gas emissions.

The LCFS is already working to reduce the carbon-intensity from transportation fuels – including petroleum gasoline, diesel, biofuels, natural gas, and electricity. To meet post-2020 GHG emission reduction targets, the transportation sector will need to shift to ultra low-carbon, sustainable alternative fuels *while also* reducing the carbon-intensity of *existing* fuel sources like petroleum-based fuels.

By the same token, the state must also protect against *carbon-intensification* from existing and new fuel sources going forward. As conventional resources become depleted, the petroleum industry has shown its capacity to seek out new fossil resources that are, in many cases, of lower-quality and higher-carbon intensity.

The following principles guide our comments on petroleum-based fuels under the refinery and crude oil provisions. The modifications to the LCFS should in general:

1. Ensure accurate accounting for the lifecycle, GHG emissions from all fuels including petroleum-based ones
2. Send a direct signal to reduce emissions through the deployment of innovative technologies
3. Send a direct signal to discourage increases in carbon-intensity by refineries and crude oil producers.

Refinery Provisions

With respect to refinery emission provisions, we note that CARB has made significant strides to improve lifecycle carbon accounting for most fuel types compared to the 2006 to 2009 period when the standard was first developed and adopted. In addition to the information provided under the AB32 Mandatory Reporting Rule and the refinery energy efficiency self-audits, ARB has far more information on the performance of petroleum refineries than even five years ago. At the April 18th Workshop, ARB showed that refinery emissions can vary between below 4 grams per megajoules (g/MJ) of gasoline produced to nearly 18 g/MJ, on the same order as crude oil production emissions.

As outlined in NRDC's issue brief, refineries and crude oil production facilities have a large potential to invest in cleaner technologies including energy efficiency, switching to renewable feedstocks and energy inputs, among other pathways.[1] Some of these technologies also have the potential to provide additional public health and environmental benefits by reducing criteria and toxic pollutants.

NRDC supports ARB encouraging GHG emission reduction activities at petroleum refineries. However, ARB should ensure that, if a project-specific approach is utilized, the refinery should provide sufficient documentation for public review together with verification by ARB or third-parties.

Specifically, ARB should adopt requirements that ensure:

***Refineries seeking credits shall demonstrate net GHG emission reductions across the entire refinery, inclusive of the project, and that those reductions are direct, additional, and permanent*.** The refinery should demonstrate that reductions are *net* across the entire refinery, such that other units within the refinery are not increasing emissions. As an example, a theoretical refinery provides information to ARB that it is intending to upgrade its boilers and heaters to highly efficient ones, claiming a theoretical 20,000 tons per year of reductions. However, it is also upgrading other units in the refinery going forward resulting in increases by a theoretical 20,000 tons per year. The refinery should receive no net credits under this scenario. ARB can build off existing reporting requirements under the AB32 Mandatory Reporting Rule as one check, normalizing these emissions against the product outputs at the refinery for a particular year.

Emission increases at refineries should also be accounted for by the standard. As ARB noted in staff's April 18th presentation, refineries are both capable of investing to reduce emissions but can also increase emissions ("the other side of the coin"). As part of basic accounting practices,

[1] NRDC (2013) "Carbon reduction opportunities in the California petroleum industry," http://www.nrdc.org/energy/california-petroleum-carbon-reduction.asp

we strongly support accounting for both emission increases as well as decreases. More than ever, a direct and fair signal is needed to protect against back-sliding at refineries.

Projects credited should represent investments to achieve additional, or "above-and-beyond," reductions. ARB should only recognize projects that are above-and-beyond – or additional – to normal maintenance operations and existing requirements. For example, projects which should be part of the normal industry practice, such as tightening leaky valves, should not be credited. Credits should be reserved for those projects that represent actual investments and that go above-and-beyond those already directly required. In the same vein, we also support ARB staff crediting projects implemented in 2015 and beyond rather than prior to the development of these provisions. Projects that were implemented prior to 2015 are clearly already happening and not additional or new projects.

Crude Oil Provisions

Technologies that reduce emissions from the petroleum supply chain can yield significant GHG emission reductions. This is largely because even small incremental improvements, utilized across major volumes of fuel, can translate to large reductions.

NRDC supports ARB's focus on "innovative" technologies that are demonstrated to be additional, permanent, and direct. We support the inclusion of renewable-based inputs (including both solar and wind) being used to replace fossil inputs under the LCFS. As a large user of natural gas in the state, crude oil producers can shift to near-zero carbon energy inputs, like solar thermal, to reduce the carbon-intensity of oil production while also reducing criteria-emissions from once-thru steam generation.

We would oppose however, providing LCFS credits for merely shifting to a lighter oil crude oil slate without demonstrating direct, additional and permanent carbon emission reductions. Currently, a number of California refineries are positioning themselves to increase their supplies of Bakken tight oil (generally lighter), presumably because these are currently "price advantaged" crude oils. Such shifts are typically ephemeral, not additional or permanent. Simply crediting for these shifts – which do not reflect investments to reduce carbon emissions permanently -- could significantly undermine the LCFS requirements and should not receive credits.

ARB should change the substantiality requirement to focus more on absolute GHG reductions. We agree that ARB needs to prioritize pathways that achieve a *de minimus* amount of reductions to reduce administrative burden. One can achieve this by moving from a 1 g/MJ *de minimus* threshold to an absolute GHG emission reductions threshold. For example, an absolute threshold of 2,000 MT per year of reductions corresponds with a 5 g/MJ reduction from a 5 million gallon per year ethanol facility and a 1 g/MJ reduction from a 1000 barrel per day oil field.

ARB should move to direct, refinery-specific accounting for refinery and crude oil intensification. Against the backdrop of a vastly improved ability to assess the carbon-intensity of crude oils through development of the OPGEE model, ARB has rightfully improved the LCFS since 2009 by including performance-based provisions to help protect against backsliding in crude oil carbon-intensity (and ultimately gasoline and diesel).

We strongly support ARB recognizing and accounting for any increases in crude oil production emissions versus the baseline. At present, however, ARB only accounts for intensification in crude oil production and not for changes in refinery emissions.

We request ARB move to a refinery specific accounting approach that more directly accounts for emission increases from crude oil production and refining emissions. Many communities and local citizens, environmental, and health-based groups throughout California are concerned about the expanded use of higher carbon-intensities ("CI") crude oils by some refineries. Many of these inputs may also require additional energy to process and further contribute to local air pollution.

We understand from the April 18th workshop that ARB is trying to prevent inter-industry differences by utilizing a state-wide, moving average approach, given that some refineries have historically higher crude oil carbon-intensities (CIs) and some refineries have lower historic CIs. Ultimately, a refinery that shifts to higher CI inputs is likely increasing the carbon-intensity of gasoline and diesel. ARB can make the current anti-backsliding measure more direct, stronger, and protective -- analogous to the ways in which ARB is making the improvement signals more direct and stronger across the petroleum supply chain.

ARB should ensure double-counting within the program is avoided.
Finally, for the crediting of innovative crude oil production methods, it is unclear whether any credits provided to a crude oil producer will show up a second time, as a credit to refineries under the moving state-wide average crude carbon-intensity. Doing so could effectively double-count and double-credit reductions under the program (in particular to refineries that may not have purchased or invested in upstream reduction activities). We request ARB clarify this issue.

We thank ARB staff and management for their continuous, on-going work on such a critical regulatory policy to help address climate change. Your work under the LCFS is helping ensure that our existing fuels clean up over time and that we transition to the cleanest, lowest carbon sources.

Sincerely,

Simon C. Mui

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