

August 21, 2017

Sam Wade - Branch Chief
Transportation Fuels Branch, Industrial Strategies Division
California Air Resources Board
1001 I Street
Sacramento, CA 95814

Dear Mr. Wade,

Thank you for the opportunity to comment on the materials presented at the August 7 workshop on updates and re-adoption of California's Low Carbon Fuel Standard (LCFS). The LCFS has been one of the key pillars of California's global leadership on climate change. Since its implementation in 2010, the LCFS has reduced carbon emissions from the transportation sector by over 28 million metric tons and helped expand California's consumption of alternative fuels, they now account for over 8% of in-state transportation fuel, on an energy basis.¹ The success of the LCFS has inspired Oregon to adopt a similar policy, and Canada is currently developing a fuel carbon policy which borrows many core concepts from LCFS as well. California now has the opportunity to build upon the success of the LCFS by extending it through 2030, thereby reaffirming our state's commitment to cutting pollutant emissions through thoughtful, science-based policy.

We recognize that the material presented at the August 7th workshop represents preliminary findings, which begin a lengthy process of policy development and consultation. We look forward to active participation in this process. Pursuant to the request made in Slide 74 of the material presented at the August 7th workshop,² we submit this letter to provide an Environmental Alternative to the Draft Regulatory Proposal. **ARB should consider a higher CI target for the LCFS, including the 25% target evaluated in the Draft Scoping Plan as well as at least one intermediate value.** This alternative will provide significant environmental benefits to California, specifically reducing the risk that the state will exceed its GHG targets as well as reducing public exposure to toxic and criteria air pollutants resulting from the combustion of fossil fuels in vehicles.

Staff's Draft Proposal

The draft proposal discussed in the August 7th workshop indicates that staff's current recommendation is to maintain the 18% carbon intensity reduction target for 2030 that was identified in the draft scoping plan released earlier this year.

¹ https://itspubs.ucdavis.edu/wp-content/themes/ucdavis/pubs/download_pdf.php?id=2634

² https://www.arb.ca.gov/fuels/lcfs/lcfs_meetings/080717presentation.pdf

“Staff’s preferred scenario from the 2017 Climate Change Scoping Plan Update proposes an LCFS target of an 18 percent reduction in average transportation fuel carbon intensity compared to a 2010 baseline by 2030 as one of the primary measures for achieving the state’s GHG 2030 target. “

(Pre-Rulemaking Concept Paper³, pg 4)

We are deeply concerned that the 18% LCFS carbon intensity (CI) reduction target does not incentivize sufficient GHG reductions for the state to meet its 40% economy-wide greenhouse gas (GHG) reduction target, as specified by SB 32 (Chapter 249, Statutes of 2016). The Scoping Plan analysis which supported the 18% CI target also included several other GHG reduction measures which are no longer within ARB’s authority as a result of provisions in AB 398 (Chapter 135, Statutes of 2017). Specifically, AB 398 prohibits direct GHG reductions requirements for petroleum refineries and prevents the planned phase-down of free emission allowances to facilities in the industrial assistance program, which mutes the incentive for facilities covered by the industrial assistance program to reduce emissions. These changes reduce the expected emissions reductions under the preferred Scoping Plan scenario and result in an excessively high risk that California will not meet its SB 32 targets. Failure to meet this target puts Californians at risk of significant environmental, public health and economic harm due to the effects of climate change.⁴ Additionally, an 18% target may not provide a sufficient market signal to incentivize very low carbon fuels to enter the CA market. These fuels will be necessary for California to achieve mid-century GHG reduction targets, such as the 80% reduction in GHGs compared to 1990 levels by 2050 as ordered by executive order B-30-15.⁵ Without these fuels, even if California were to nominally achieve its 2030 target, we could do so with a technology package ill-suited for deeper reductions, making attainment of mid-century targets more difficult or costly.

Selecting a weaker CI target for the LCFS foregoes the opportunity to significantly reduce emissions of harmful pollutants from transportation activities, especially nitrogen oxides (NOx) and particulate matter (PM). The LCFS affords fuel providers and consumers a wide range of options for reducing the life cycle GHG emissions from fuel; virtually all of them also yield air quality co-benefits. While other GHG reduction measures can also reduce criteria and toxic pollutant emissions, the correlation between GHG reduction and air quality improvement is extremely strong in the transportation sector, other GHG reduction measures may not deliver the same co-benefits.

³ https://www.arb.ca.gov/fuels/lcfs/lcfs_meetings/080717conceptpaper.pdf

⁴ Many of these risks are covered in detail in <https://riskybusiness.org/site/assets/uploads/2015/09/California-Report-WEB-3-30-15.pdf>

⁵ <https://www.gov.ca.gov/news.php?id=18938>

The Environmental Alternative

NextGen California requests that ARB staff consider higher LCFS 2030 CI targets than the preferred alternative in the Draft Scoping Plan. **We request that ARB consider a 25% 2030 CI target, one of the alternatives evaluated in the Draft Scoping Plan, as well as one or more intermediate targets between 18% and 25%.** Selecting a higher CI target will reduce the risk that the state will exceed its statutory GHG reduction target, reduce pressure on the cap-and-trade market, stimulate the deployment of fuels capable of meeting mid-century GHG goals and significantly improve air quality in California.

ARB Staff has requested that comments suggesting changes from the draft concept paper be accompanied by representative scenarios in the fuel assessment model presented at the August 7th workshop. Due to the short time between the workshop and the deadline to submit Environmental Alternatives, we are unable to complete a fuel supply assessment to accompany this submission. Several independent research groups including the International Council on Clean Transportation,⁶ ICF International,^{7,8} Promotum,⁹ and your own agency¹⁰ have evaluated low-carbon fuel supply and concluded that ample supply exists to support significant substitution of low-carbon alternatives for gasoline to 2030. NextGen California will continue to work with staff and independent researchers to develop fuel supply scenarios based on the most recent data and implement them within the requested modeling framework. NextGen California plans to submit a comprehensive report on the subject, along with modeled scenarios, at an appropriate opportunity in the rulemaking process.

Rationale For a Higher Target

The Draft Scoping Plan - Preferred Scenario outlines an ambitious but achievable portfolio of emissions-reducing policies which would enable California to meet its 2030 target. Since some of the measures are no longer authorized due to provisions within AB 398, particularly any mandated GHG reductions from refineries (see table on following page), the reductions expected from these measures must be made up by other means.

Many alternatives considered in the Draft Scoping Plan also struggle to produce emissions reductions from the transportation sector, which accounted for 39% of statewide GHG emissions in 2015. Achieving a 40% reduction in GHG's by 2030 will be extremely difficult if the

⁶ <http://www.theicct.org/potential-low-carbon-fuel-supply-pacific-coast-region-north-america> NextGen funded and contributed to this report.

⁷ <http://www.ucsusa.org/clean-vehicles/california-and-western-states/west-coast-oil>

⁸ <http://www.caletc.com/wp-content/uploads/2016/08/Final-Report-Cap-and-Trade-LCFS.pdf>

⁹ <https://www.nrdc.org/file/2547/download>

¹⁰ https://www.arb.ca.gov/newsrel/petroleum_reductions.pdf

transportation sector cannot deliver proportionate reductions.

| Measure (Measures in bold are included in the Proposed Plan) | Range of GHG Reductions (MMTCO ₂ *) |
|---|--|
| 50% Renewables Portfolio Standard (RPS) | 13–15 |
| Mobile Sources CTF and Freight | 12–14 |
| 18% Carbon Intensity Reduction Target for LCFS -Liquid Biofuels | ~4 |
| 20% Refinery Measure | 2–5 |
| Short-Lived Climate Pollutant Strategy | 17–35 (CO ₂ e) |
| 10% of residential and commercial electric space heating, water heating, A/C, and refrigeration are assumed to be flexible by 2018 | ~2 |
| 60% RPS and additional 10 GW behind-the-meter solar PV* | ~14 |
| 25% Carbon Intensity Reduction Target for LCFS and a Low-Emission Standard - Liquid Biofuels* | ~5 |
| 30% Refinery* | 1–3 |
| 25% Industry | 2–7 |
| 25% Oil and Gas | 1–3 |
| 5% Increased Utilization of RNG (core and non-core) | ~2 |
| Mobile Source Strategy (CTF) with Increased ZEVs in South Coast and early retirement of LDVs with more efficient LDVs* | 5–8 |
| 2x additional achievable energy efficiency in the 2015 IEPR | 6–8 |
| 2.5x additional achievable energy efficiency in the 2015 IEPR, electrification of buildings (heat pumps and res. electric stoves) and early retirement of HVAC* | 6–9 |
| Cap-and-Trade Program | 45–100 |
| Carbon Tax | 45–100 |
| Proposed Scenario | 132.4 |

Source: Table III-2, Draft Scoping Plan¹¹

California has a limited number of tools available for reducing transportation emissions beyond the measures already counted as existing measures in the Draft Scoping Plan. Improved fuel economy and travel demand reduction are both commonly proposed as ways to reduce transportation emissions, however in both these cases, existing policies - the Advanced Clean Cars Rule and the Sustainable Communities Strategies - are already committed to produce significant GHG reductions, which are considered as part of the existing measures against which the additional measures of the Draft Scoping Plan are evaluated.

¹¹ https://www.arb.ca.gov/cc/scopingplan/2030sp_pp_final.pdf

Only three options considered in the draft scoping plan analysis, but not included in the Proposed Plan have the potential to make up for the lost emissions cuts from California's transportation sector. A higher LCFS CI target, South-Coast targeted ZEV deployment coupled with early retirement of older light-duty vehicles, or relying on the cap-and-trade market.

Increasing the LCFS target provides the greatest environmental benefit of those three options. It also provides many co-benefits which help California meet environmental and clean-vehicle targets. An increased LCFS target incentivizes ZEV deployment by generating revenue for ZEV fueling providers through LCFS credit generation. This revenue can help subsidize deployment of charging infrastructure, which supports the fundamental economic model which has led to several private charging-service companies to deploy infrastructure in California. LCFS credits can also be used to fund rebates for the purchase of electric vehicles, as most utilities do for LCFS credits from unmetered residential charging. Supporting the LCFS yields many of the ZEV-promotion and air quality benefits of the South-Coast ZEV strategy, with better cost-effectiveness than the scrap-and-replace program discussed in the Draft Scoping Plan.¹²

Higher LCFS CI Targets Reduce Stress on the Cap-and-Trade Market

A higher LCFS target can offset the simultaneous reduction in supply and increase in demand affecting the pool of freely-available permits in the cap-and-trade auction and secondary markets. AB 398 prohibits the 20% Refinery Measure proposed in the draft scoping plan. If the emissions reductions from the refinery market are not made up through other policies, refiners will be obligated to buy permits to cover their emissions, adding a significant additional demand to the pool from which the non-petroleum sectors of the economy must obtain sufficient allowances to cover emissions. That pool will also have shrunk because of the elimination in the phase-down of industrial assistance, which represents about 15% of total allowance allocation under the cap and trade program. That fraction was scheduled to step down to a lower level of free allocation in 2018, followed by another planned reduction in free allowances as the program converted to industry-specific allocations based on actual risk of emissions leakage.¹³

Eliminating the refinery rule and phase-down in industrial assistance reduces the pool of permits to capped entities outside of the petroleum sector, which would likely reduce liquidity and put upward pressure on allowance prices. The industrial assistance provision may shield the petroleum sector from these effects, but in doing so it could displace them onto the remaining capped sectors of the economy.

¹² Li, S., Linn, J., & Spiller, E. (2013). Evaluating "Cash-for-Clunkers": Program effects on auto sales and the environment. *Journal of Environmental Economics and Management*, 65(2), 175–193.
<http://doi.org/10.1016/j.jeem.2012.07.004>

¹³ <https://www.arb.ca.gov/regact/2016/capandtrade16/attach.pdf> Table 8-3

While there are no options, absent additional legislation, to prevent the freeze in industrial allowance levels or elimination of refinery-specific measures, ARB has tools to avoid further strain on allowance supply within the cap-and-trade market; AB 398 specifically confirmed the use of the LCFS to help meet state GHG targets. Re-adopting the LCFS with a higher CI target has a salutary effect on the cap-and-trade market in two ways. First, it offers an opportunity for near-term direct emissions reductions to replace those that were lost when the refinery rule was prohibited, without simply requiring more from the cap-and-trade market. Second, the LCFS incentivizes the deployment of advanced technologies which significantly reduce long-term compliance costs. Modeling conducted by ICF international estimates that a 25% CI target would reduce cap-and-trade credit prices by up to \$29 per tonne.¹⁴ By reducing the compliance obligation from fuel providers, a LCFS target can ensure that the cap-and-trade market is at less risk of price spikes, insufficient liquidity, or chronic exceedance of emissions targets.

The 20% refinery measure was also intended to incentivize the use of lighter crudes in California's refineries. The use of lighter crudes not only reduces the direct GHG emissions from refineries during processing, but also tends to reduce criteria pollutant emissions, by reducing the energy demands during processing and minimizing feedstock sulfur, which can contribute to particulate formation. A higher LCFS CI target would incentivize a similar reduction of emissions from refineries through the proposed Refinery Investment Credit and Renewable Hydrogen provisions.¹⁵ These provisions offer refineries the opportunity to lower the CI score of their fuels and reduce their compliance obligation by installing efficiency improvements or substituting renewably-produced hydrogen for fossil. The measures which apply to these provisions would typically reduce process energy requirements and fugitive emissions, which ultimately reduce the air pollutant emissions from the refinery.

The LCFS also provides a significant opportunity to reduce criteria pollutant emissions from the transportation sector. While LCFS-related alternative fuel production may result in occasional local increases in emissions, this effect is overwhelmingly offset by reductions in criteria pollutant emissions from fuel combustion.¹⁶ Almost every fuel which generates LCFS credits also yields significant criteria pollutant co-benefits. Since the dominant mechanism for reducing pollutant emissions is displacement of petroleum fuels in the California transportation sector, a higher CI target, which requires more low-carbon fuels to enter the market, is very likely to increase the air quality benefits as well.

¹⁴ <http://www.caletc.com/wp-content/uploads/2016/08/Final-Report-Cap-and-Trade-LCFS.pdf>

¹⁵ https://www.arb.ca.gov/fuels/lcfs/lcfs_meetings/080717conceptpaper.pdf Pg. 28-30

¹⁶ <https://www.arb.ca.gov/regact/2009/lcfs09/lcfsisor1.pdf>

Higher CI Targets Support Attainment of Multiple Environmental Goals

We encourage ARB to give full consideration to a higher CI target than the 18% proposed in the Draft Discussion Document released prior to the August 7th meeting. A 25% CI target would maximize the beneficial effects of the LCFS, while strongly contributing towards attaining California's GHG reduction portfolio, as described in the Draft Scoping Plan. Evaluating one or more intermediate targets gives the Board maximum flexibility in determining optimal course of action based on the supply assessments anticipated as part of this rulemaking. A higher CI target will significantly reduce the risk that the state could fail to meet its critical GHG reduction goals. In addition to the GHG benefits, a higher LCFS target is likely to provide significant air quality benefits, particularly to vulnerable communities near major roadways or transportation hubs, as well as petroleum refineries. There is ample evidence to conclude that likely low-carbon fuel supplies are sufficient to support a more ambitious target and we will work with ARB and other stakeholders over the coming months to quantify likely supply. Giving thorough consideration to one or more higher-CI target alternatives will allow the Board to make a fully informed decision as this rulemaking moves forward.

Thank you again for the opportunity to comment on this issue.

Sincerely,

Colin Murphy Ph.D.
Climate Policy Advocate
NextGen California