American Lung Association in California • Center for Energy Efficiency and Renewable Technologies • Environmental Defense Fund
National Wildlife Federation • Natural Resources Defense Council
The Nature Conservancy • Union of Concerned Scientists

February 17, 2015

Mary Nichols, Chairman
California Air Resources Board
1001 I Street, PO Box 2815
Sacramento, CA 95812

Dear Chairman Nichols and Members of the Board:

Thank you for your commitment to cleaner, healthier air for all Californians and for your international leadership in protecting current and future generations from the impacts of climate pollution. Our organizations appreciate the work of the Board and staff to develop, implement, and defend a key policy measure under AB 32, the Low Carbon Fuel Standard, and respectfully submit these comments for consideration at your February 19 hearing. Also reflected in these comments is our support for the Alternative Diesel Fuels regulation, which is also before you on the 19th.

In January, Gov. Jerry Brown outlined a goal for California to cut in half its petroleum use in cars and trucks by 2030. The LCFS is a critical policy measure to allow the state to achieve this new goal. California remains one of the biggest consumers of petroleum nationally; the state used 14.2 billion gallons of gasoline and 3.8 billion gallons of diesel fuel in 2013.[1] Our state's current dependence on petroleum fuels generates nearly half of our climate pollution, 80 percent of smog-forming NOx emissions, and 95 percent of cancer-causing diesel particulates.[2] The state's dependence on oil is dangerous to public health and is a leading contributor to air pollution. Today, unhealthy air causes more than 9,000 premature deaths and tens of thousands of asthma attacks, emergency room visits, and hospitalizations each year in California.[3] By cutting carbon emissions from transportation fuel, the LCFS is an important piece of California's policy response to the environmental and health crisis caused by our dependence on oil.

The LCFS is a critical component of AB 32, California's Global Warming Solutions Act of 2006; it represents one of the state's largest greenhouse gas emission reduction measures. As such, it provides

[1] ARB December 2014 *Staff Report: Initial Statement of Reasons, Proposed Re-adoption of the Low Carbon Fuel Standard,* Pg ES-1
[2] IBID
[3] ARB *Estimate of Premature Deaths Associated with Fine Particle Pollution (PM2.5) in California Using a U.S. Environmental Protection Agency Methodology* http://www.arb.ca.gov/research/health/pm-mort/pm-report_2010.pdf

the necessary foundation for meeting California's existing health-based air quality and climate goals, and puts the state on a path for meeting its long-term goals with deeper emissions cuts. The program is establishing a direct, long-term regulatory structure to transform our fuel supply in order to:

(1) enable a switch from high-carbon petroleum to ultra-low carbon fuels
(2) ensure continued reductions from all existing fuels, and
(3) protect against crude oil getting even dirtier over time and offsetting progress being made in the transportation sector.

Therefore, the LCFS must remain strong now in order to meet its 10 percent carbon reduction standard in 2020 and be enhanced in the post-2020 time period to ensure that California's 2050 climate goals are met.

1. We strongly support staff's proposal to stay the course on requiring a 10 percent reduction in fuel carbon intensity by 2020.

We strongly support staff's proposal to retain the existing requirement to reduce carbon intensity of diesel and gasoline fuels 10 percent by 2020 and ask the Board to reject long-standing efforts to weaken the standard.

We call on the Board to continue to provide greater regulatory certainty so that the industry stays on track to meet the 10 percent reduction goals. Years of accumulated experience under the LCFS show that the regulated parties continue to make significant progress in achieving the 10 percent in 2020 reduction requirement, with the current requirement being exceeded by nearly 70 percent.[4] More than ever, LCFS regulatory certainty and program stability is needed to support the transition to low-carbon fuels occurring in California and throughout the Pacific Region, where Oregon, Washington, and British Columbia are also working to implement or adopt clean fuel standards.

Furthermore, a growing body of research shows that the oil industry can meet the LCFS targets. A new study conducted by Promotum, a fuels and chemicals consultancy, and commissioned by the Natural Resources Defense Council, the Union of Concerned Scientists, and the Environmental Defense Fund, found that the oil industry can meet the 2020 LCFS standard through known, existing fuels and refinery technologies.[5] (We are also submitting the Promotum study as a separate comment in support of the proposed requirements.) These known strategies include expanding the use of lower-carbon biodiesel and renewable diesel, biomethane, electricity, and ethanol, and improving the carbon intensity of existing alternative fuels. The Promotum study also found that existing oil refineries and crude oil production facilities could dramatically cut their carbon footprint by integrating renewable energy, utilizing innovative technologies, and investing in greater energy efficiency. The Promotum results

[4] Air Resources Board (2014), *Low Carbon Fuel Standard Regulation: Initial Statement of Reasons*. December 31, 2014. http://www.arb.ca.gov/regact/2015/lcfs2015/lcfs2015.htm

[5] Promotum. *California's Low Carbon Fuel Standard: Evaluation of the Potential to Meet and Exceed the Standards*, February 2015

complement a body of technical work, including a compliance and economic study by ICF International (2013), and a regional fuel supply study conducted by ICCT and E4Tech (2014).[6]

2. We support additional reductions and urge ARB to look beyond 2020.

Establishing strong signals now for the post-2020 timeframe is consistent with the transformation process outlined in the First Update to the AB 32 Scoping Plan. California's near-term efforts to establish a strong market for clean, low carbon fuels are critical to make sure the state is on the pathway to the deeper reductions needed to meet the 2050 goals.

Moreover, the growing body of scientific evidence indicates this is possible. Industry can meet more stringent standards and there will be enough alternative fuels available to help industry comply. The aforementioned study by Promotum finds California is capable of reaching a 15 percent reduction target for the LCFS by 2025, representing a tripling in the share of alternative fuels in the next 10 years. The study by ICCT and E4Tech finds that available low carbon fuels could grow to replace up to 400,000 barrels of gasoline and diesel use *per day*, reducing the overall carbon intensity of on-road transportation fuels in California and the Pacific Northwest by 14 percent to 21 percent by 2030.[7]

Furthermore, we support the concept of having one regulatory review or report back to the Board prior to 2020 to ensure that the regulation is on track and to incorporate any critical updated scientific data, as ARB is doing with the current regulatory update. However, we ask the Board to reaffirm that any review also be used as a process to enhance long-term regulatory certainty and stability, by including as part of the scope (1) a discussion and evaluation of potential post-2020 requirements beyond the 10 percent carbon-intensity reduction, and (2) an assessment of the LCFS's ongoing contribution and future progress toward meeting both AB 32 goals and the Governor's 2030 climate and petroleum reduction goals.

3. We support ARB's proposal to credit refinery pollution reduction improvements and innovative technologies.

We have long held that oil companies can also invest to reduce their own carbon emissions directly at their facilities, thereby lowering their own carbon intensity. A study by TetraTech, a technical consultancy, and NRDC (2013) found that implementation of just a handful of technologies could significantly contribute to meeting the goals of the LCFS.[8] This is largely because even small reductions in carbon intensity, across larger volumes of crude oil or petroleum products, can generate significant carbon reductions.

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[6] http://www.theicct.org/potential-low-carbon-fuel-supply-pacific-coast-region-north-america; http://www.caletc.com/lcfsreport/ (commissioned by California Electric Transportation Coalition, California Natural Gas Vehicle Coalition, Advanced Biofuels Association, CERES, and Environmental Entrepreneurs.

[7] Malins et al. *Potential Low Carbon Fuel Supply to the Pacific Coast Region of North America*. The International Council on Clean Transportation. Washington, D.C., January 2015

[8] Tetratech and NRDC, *Carbon Reduction Opportunities in the California Petroleum Industry*, October 2013, http://www.nrdc.org/energy/california-petroleum-carbon-reduction.asp

We commend ARB staff for their extensive work and research into the many ways that refineries and crude oil production facilities can reduce their own carbon intensity, and for developing a proposal that allows facilities to obtain LCFS credits for greenhouse gas emissions reductions achieved through their refinery improvement and capital investment projects and through incorporation of renewables. Many of these projects, including solar thermal technologies and energy efficiency at refineries, are expected to have co-benefits in terms of reduced toxics and criteria pollutants. ARB is right to ensure, however, that the additional compliance pathways provided to regulated parties are only for projects that are beyond business-as-usual; that reductions are real and permanent, and verifiable; and that additional co-benefits in terms of reduced toxics and criteria pollutants are maximized. We support ARB staff adopting the above principles as a matter of good policy, and we support ARB's proposal to ensure that that projects represent:

- Actual capital investments or represent increases in renewable energy or feedstock use at refineries. This is to ensure that the program is not rewarding merely shutting down units, rewarding business-as-usual practices, and that actual capital investments or procurement occurs.
- Net carbon-intensity reductions at the refinery. This ensures that only the *net* reductions in carbon intensity at the refinery overall are rewarded (as opposed to only counting emissions from one unit of the refinery). Also, since a carbon-intensity approach is being utilized, the program accounting is robust against annual variations in production (or throughput) at refineries.
- Projects implemented in 2015 or later. Only new refinery carbon-intensity reduction projects, and not past projects that have already been completed, should be rewarded with credits to ensure valuable LCFS credits are not going toward "anyhow" reductions that would have occurred anyways.

Beyond general refinery improvements, ARB appropriately proposes to award credits for innovative technologies that allow crude oil producers to reduce their carbon intensity. A number of technology providers have already expressed interest and have indicated they are attempting to develop projects. The Tetratech/NRDC (2013) study found that existing oil refineries and crude oil production facilities could dramatically cut their carbon footprint by integrating renewable energy inputs, utilizing innovative technologies such as solar thermal, and investing in greater energy efficiency. The study estimated that 3 to 6.6 MMT of CO_2 emission reductions could occur from California facilities alone by 2020, representing 16 percent to 39 percent of the annual requirements that year. We note that the scope of the Tetratech/NRDC study did not incorporate opportunities to replace fossil natural gas at California refineries, which are the single largest industrial user in California.

We note that while many California refineries have publically stated or self-reported that they have pursued all or nearly all cost-effective energy efficiency reduction opportunities, a wide array of literature points to the potential being large and highly dependent on the internal rate of return (IRR) assumed.[9] For example, Booz & Company (2010) estimated that the reduction opportunities at one

[9] Just a few examples include: Kema, Inc., Lawrence Berkeley National Laboratory and Quantum Consulting, *California Industrial Existing Construction Energy Efficiency Potential Study,* for Pacific Gas and Electric Company,

example company increased by more than 3.5 times when going from a high 51 percent IRR to a 14 percent IRR metric for projects. We also note that the carbon reduction value—as monetized by regulatory systems—also greatly affects the cost-effectiveness of projects.[10] In addition, the scopes of both the TetraTech/NRDC (2013) and Promotum (2014) studies only considered a handful of technologies, such that the inclusion of additional technologies utilized by refineries and crude oil producers could result in an even larger reduction potential.

Finally, we applaud the development of the refinery investment provision as a positive incentive to cut greenhouse gases, toxics, and other air pollutants in communities burdened by refinery emissions. While the LCFS is aimed at reducing petroleum consumption, we must also support incentives to clean up local pollution sources and improve community health as the LCFS moves forward. We strongly support ARB precluding refinery investment projects that would cut carbon but increase criteria air pollutants or air toxics from receiving credits.

4. We support ARB continuing to account for the carbon intensity of crude oils.

Since its inception, the LCFS has accounted for and protected against potential worsening of petroleum fuels, such as from high carbon-intensity crude oils. We support ARB continuing to ensure the LCFS properly accounts and protects against increases in the carbon-intensity performance of gasoline and diesel above the 2010 baseline, due in particular to increased crude oil production emissions over time. As the modeling work by ARB has shown, the carbon intensity of various crudes can vary as greatly as the carbon intensity of alternative fuels. It makes little sense to ignore those changes from petroleum fuels, which comprise 93 percent of the transportation energy mix, and is consistent with the LCFS program's intent and lifecycle approach. To meet our long-term climate goals, we need to ensure that we simultaneously move to ultra-low carbon fuels *while* preventing current petroleum-based fuels from becoming even dirtier over time. The accounting mechanism for petroleum is a key element of a strong LCFS.

5. We support the cost-containment "safety valve" mechanism. The proposed $200/ton cap is reasonable, well-considered, and supported by ample evidence.

Our organizations previously commented that we agree with a broad array of stakeholders that adoption of a well-designed cost-containment mechanism can result in a greater investment certainty and a more robust, resilient program. It can also put to rest extreme cost claims by the oil companies. Some parties, including many serving on the LCFS Advisory Panel in 2011 and the UC Davis Expert Review Panel in 2013, suggested a cost-containment mechanism may provide more price certainty and make the program more resilient in the face of credit price or fuel cost concerns. These suggestions,

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May 2006.; Worrell, E. and C. Galitsky, *Profile of the Petroleum Refining Industry in California,* Lawrence Berkeley National Lab, LBNL-55450, March 2004; Zhu (2010), "Process Technology: The Key for Industrial Eenrgy/CO_2 Reduction," presentation Petrotech, UOP/Honeywell. McKinsey and Company (2007), "The Untapped Energy Efficiency Opportunity of the U.S. Industrial Sector."

[10] "Profiting from emission reductions in process industries: an oil and gas example," Booz & Company, 2010.

provided both orally and in writing to the agency form a strong record upon which the Board can make a reasoned decision.

At the same time, we noted that a variety of mechanisms built in to the existing regulation, such as credit trading and the life-long use of credits, are already helping ensure market stability in the current program. With new pathways constantly being adopted, additional compliance options provide even more market stability. As asserted in the ARB staff proposal: "The analysis that informed the proposed compliance curves was based on an informed expectation that there will be sufficient credits available through 2020 from existing low-CI fuel technologies and promising low-CI fuels on the horizon."[11] This statement further supports our belief that a cost-containment mechanism can serve a supporting role, providing even greater market stability.

ARB's proposed safety valve, a Credit Clearance Market, provides an alternate means to comply with the LCFS in the event that low carbon fuel supplies or pollution reduction opportunities are truly unavailable, or credits exceed $200 per ton in costs. If a regulated party is unable to meet the standard in any year, the provision allows additional time for the company to comply so long as all available credits are purchased during a "clearance period," with the regulation stipulating the price to be at or below $200/ton. This helps ensure that regulated parties are not sitting on any credits if there is demand for them, the available supply of reductions are truly utilized, and no party would have costs exceeding the ceiling.

If all available credits at or below $200/ton are utilized, oil companies can make up any shortfalls in emission reductions the following year, for up to five years. To ensure that companies are not simply delaying compliance, there is a 5 percent annual interest applied to any debt. This effectively provides more time to companies, preserves the environmental benefits, and ensures that other companies that invest and fully comply aren't unfairly penalized by a lower bar provided for others.

ARB has appropriately built in safeguards to ensure that its Credit Clearance Market is transparent, ensures all LCFS credits have been purchased by regulated parties, provides long-term compliance certainty to parties, and stimulates further investment in low-carbon fuels that reduce greenhouse gas emissions.

ARB's proposed $200/ton cap is reasonable as a "low ceiling" and could even be slightly higher while achieving the above goals. Both the aforementioned Promotum (2015) report and staff ISOR found that compliance to 2020 could be met assuming $100 per credit, providing roughly $1/gallon of gasoline equivalent of incentive for ultra-low carbon fuel providers such as cellulosic ethanol and waste-based biodiesel producers. A $200/ton cap provides a reasonable ceiling in the event of a shortfall of reduction opportunities, equivalent to twice the incentive levels. The staff's proposal to adjust the price using a Consumer Price Index deflator in all years subsequent to 2016 is well-considered, and ensures that the mechanism keeps pace with inflation and remains at a constant price, in real terms.

[11] ARB December 2014 *Staff Report: Initial Statement of Reasons, Proposed Re-adoption of the Low Carbon Fuel Standard,* Pg ES-4

As noted in past comments, some alternative fuel producers who are interested in starting new low-carbon fuel projects have indicated that a "price floor" would be very valuable to help address uncertainty with the LCFS credit value going forward and would also allow more investors to incorporate the LCFS value when evaluating new projects. We urge ARB to continue working with stakeholders to develop a feasible, implementable, and effective floor option and return to the Board with a floor proposal to complement the cost ceiling mechanism currently being proposed.

6. We support expanded electric transportation credits.

Our organizations support the expanded role for electrification of transportation in the LCFS. The proposal to allow transit agencies to opt-in to the LCFS for fixed guideway systems (light rail, street cars, trolleys, etc.) encourages cleaner transit that cuts carbon pollution, cleans up neighborhood traffic pollution, and supports sustainable communities as envisioned under Senate Bill 375. We support the provisions to more clearly account for the sustainability benefits of California's growing electric bus fleet. These expanded electric transportation credits provide local air quality benefits, encourage the development of more ultra-low carbon transportation options,[12] and support healthier, sustainable communities.

7. We strongly urge ARB to develop sustainability provisions and independent verification for the LCFS by the end of 2016.

We strongly support the efforts of ARB staff to develop sustainability provisions and an accompanying independent verification process for the LCFS. Both are critical in order to realize the full environmental benefits of the program and for creating a long-term and durable policy that helps avoid negative impacts. Several of the organizations participating in the Sustainability Work Group have recommended that the sustainability provisions establish performance requirements that are equivalent to, if not more stringent than, the standards of the Roundtable on Sustainable Biomaterials (RSB).

Internationally, a large number of biofuel producers, biomass producers, commercial purchasers, government agencies, academics, and NGOs have recognized the need for and value of sustainability certification. Biofuels have tremendous potential to reduce carbon emissions and protect environmental values if developed with caution and appropriate safeguards. However, in the absence of safeguards, some actors may choose to produce biofuels in a manner that has negative environmental or social consequences, raising important questions about the long-term sustainability of the industry.

We have worked in good faith over the past four years with ARB staff and the Board toward voluntary sustainability provisions that help encourage best practices while protecting against potential negative impacts that pose significant risks to the environment and communities. Potential negative impacts include increases in greenhouse gases that can occur if deforestation of native forests occurs for energy crops, loss of critical habitat and biodiversity, increased water consumption, conflicts over land or water

[12] California Air Resources Board LCFS/ADF Draft Environmental Impact Report. The sale of credits generated for could allow transit agencies to reduce fares, expand service or EV bus fleet or upgrade infrastructure. p.23

rights, and reduced food security. Standards such as RSB were developed because a diverse array of stakeholders agreed these impacts should and can be avoided.

Both sustainability provisions and an accompanying independent verification process are critical in order to realize the full environmental benefits of the LCFS and for creating a long-term and durable and policy that helps avoid negative impacts. They serve to:

1) Encourage producers to utilize voluntary third-party certification systems, which allow for on-the-ground measurement and verification of environmental performance (including, but not limited to greenhouse gas emissions).
2) Discourage bad actors engaged in projects resulting in significant environmental harm.
3) Build capacity for ARB to protect against actors producing fuels in a manner that may be environmentally unacceptable.
4) Help provide ARB with additional information and data around production of field, feedstock and facility parameters, which third-parties collect and audit.

While it is true that it would take additional staff resources to establish sustainability provisions for the LCFS, once developed, existing third-party systems could in theory help reduce workloads going forward. ARB's Sustainability Work Group has made significant progress in developing a science-based definition of sustainability and the specific provisions to be included in the LCFS regulation. But its efforts have stalled, in part due to lack of resources. It is critical to the overall goals and long-term durability of the LCFS that ARB complete this work and formally incorporate sustainability provisions, along with a credible, independent verification process for those provisions, into regulation by end of 2016.

8. We urge ARB to continue reviewing and strengthening existing mechanisms over time to ensure LCFS pathways are verifiable and requirements are enforced.

As the Board considers re-adoption in 2015, we also urge ARB to prioritize its future efforts to review and strengthen verification and enforcement activities over time. In particular, staff should consider how the program could augment verification activities to ensure that in-use production practices reflect the original information submitted to establish the pathway, in order to minimize the risk of unintentional errors or even potential fraud. These comments are also made in light of the fraud that did occur with the Renewable Fuels Standard in 2011, which the U.S. Environmental Protection Agency has now addressed through subsequent requirements and changes.

After the LCFS re-adoption process concludes, ARB should consider potential requirements that could supplement existing enforcement activities, including third-party analysis and verification. Third-party verification, such as by the RSB or an equivalent standard, as mentioned above in Section 7, could provide additional safeguards to ensure that the production methods, feedstocks, and supply chain that can affect greenhouse gas emissions is accurately reported. We also note that some third-party certification systems may also include additional sustainability information that is collected and reported as an added co-benefit. At this time, we are aware that some stakeholders have discussed in previous workshops whether the credit generator or obligated regulated party holds ultimate

responsibility for LCFS credits and potential errors. We have not taken a position on this additional matter to date.

As an example of where additional verification and enforcement may be needed, we discuss used cooking oil (UCO), potentially an ultra-low carbon feedstock for the LCFS fuel mix. Converting UCO to biodiesel reuses a "waste" product and avoids displacement effects, such as indirect land use change or adverse effects on availability of food, forage, and fiber crops – if it is indeed "used." There has been some concern that the strong LCFS value may provide a perverse inducement to substitute disguised virgin oils for UCO, depending on the availability of UCO in certain supply chains and cost fluctuations in the various spot markets for oils. This might be the case for palm oil, for example, because the price has seen significant fluctuations in recent years.

Two applications for a Method 2B Fuel Pathway approval (UCO to Biodiesel) that we examined last November did not appear to offer any means of verifying that UCO was used. In fact, the information about the feedstock oil origin and supply was redacted as confidential business information, or otherwise unavailable on the application web site. Going forward, ARB should consider requiring further verification if not done already, including for co-mingling of feedstocks more generally. Thus, to help ensure the GHG benefits of the program and that all parties are utilizing the feedstocks that they are claiming credit for, ARB should consider supplementing current verification activities around feedstocks.

In this example, UCO feedstock verification can be rather simple: There is no need to trace the UCO back to the crops that produced the oil, or to document a full chain of custody farther back than the gathering of the UCO. But it does require that the users and aggregators provide data that allow a verifier to match the volumes collected and the companies collected from. Existing third-party tools, such as the RSB's system for verification and chain of custody related to "End of Life Products and Residues" RSB-STD-01-010-ver.1.6[13], provide the necessary safeguards and are tailored for the essential questions that can verify the "used" status of UCO.

9. We support the current inclusion of a public comment period for fuel pathways and request a longer time period be provided to allow for sufficient review by stakeholders.

We appreciate the opportunity to comment on proposed fuel pathway applications. We would ask, however, that under the re-adopted LCFS, a longer period be instituted for the comments. Some of us experienced difficulties in providing comments for Method 2 B fuel pathways in just the last few months; the current 10-day period is very short to assess a new pathway and gather relevant information. The 10-day period has been interpreted to include the weekend days, which means that some 10-day periods only include five working days.

[13] http://rsb.org/pdfs/standards/RSB-STD-01-010%20-%20ver%201.6%20RSB%20Standard%20on%20end-of-life-products,%20residues%20and%20by-products.pdf

10. The Board is on sound footing to adopt updated indirect land use change values.

First, we wish to thank ARB staff for their tireless work to address stakeholder and expert input on indirect land use change analysis. With the dedicated work of ARB staff and many contractors and collaborators, the models used in 2009 have been adapted and updated. They more carefully model animal feed markets, take into consideration irrigation, and adapt the model structure of both GTAP and the associated emissions factor model to take into consideration considerably more detailed information, especially about the United States and Brazil. This process enhanced the technical foundation of the LCFS, and also advanced the state of the art on the study of land use changes associated with expanded biofuels production. The Board is on sound footing to adopt updated emissions values as part of the LCFS re-adoption.

Despite this important progress, there remain areas for continued investigation. The most critical need is related to palm oil. Palm oil is one of the most important drivers of deforestation, and a significant global source of biofuel. The emissions from palm oil are relevant not only for palm biodiesel itself, but for fuels made from other fats, oils or oil byproducts that may substitute for palm oil in the marketplace. The interconnected markets for biodiesel and renewable diesel feedstocks are complicated and the data is imperfect. Moreover, as ARB staff highlighted, there are likely some structural limitations in GTAP that make it difficult to adjust the model to reflect key market dynamics. But this area of inquiry is clearly critically important going forward. Ongoing study is needed to ensure the link between palm and deforestation is understood, and that California fuel regulations do not indirectly contribute to deforestation from palm oil.

This is particularly important because forecasts indicate LCFS compliance may lead to a significant increase in the use of fuels made from vegetable oils and animal fats. We urge the ARB to seek expert input on key land use issues raised by palm oil in particular, and large increases in the use of bio-based diesel in general.

This focus on palm oil is important because it is a leading driver of deforestation, and less time has been put into this area than other areas of ARB analysis. But other areas identified are also very important. Forest land cover issues associated with the treatment of unmanaged land in GTAP are very important to ILUC for all fuels, and especially palm oil, and deserve further attention. It is also worth understanding the discrepancy between ARB's irrigation results and those of Taheripour, Hertel and Liu.[14] Analysis of fertilizer, paddy rice, and livestock emissions, and consideration of a dynamic GTAP model is also worthwhile. And, as cellulosic biofuels feedstocks scale up and begin to be significant driver of land use change, it will be important to understand their land use impacts.

Several recent papers continue to challenge ARB's analyses from both directions. One recent white paper argues that ARB's analysis has insufficiently recognized the potential for agricultural intensification, while other reports object to the use of crops to produce fuel instead of food, and

[14] *Energy, Sustainability and Society* 2013, 3:4; http://www.energsustainsoc.com/content/3/1/4

question the accounting framework of biofuels, land use, and carbon sequestration. There is a compelling moral and environmental case to prioritize food production and forest and other ecosystem protection over fossil energy displacement. Going forward it is important for ARB to consider how best to adjust its approach to include new sources of data, modelling approaches, and carbon accounting methodologies. These recent papers do not offer implementable refinements to ARB's methodology in the timeframe of the re-adoption, but suggest areas for inquiry over the longer term (beyond 2020) to ensure that California's low carbon fuels policies remain science-based and broadly sustainable. The work ARB has done to improve the treatment of ILUC over the last five years has certainly reflected a commitment to strong science-based administration of the LCFS, and puts the LCFS on solid footing through 2020.

11. The Biorefinery Siting Guidance needs an update to incorporate new information on disadvantaged communities.

Given the focus in many AB 32 discussions on the need to protect and improve health and air quality in California's most disadvantaged communities, ARB should provide clear direction to staff on the timing to update the Siting Guidance for Biorefineries in California section on cumulative impacts. Specifically, the guidance document should be updated to reflect the development and widespread use of CalEPA's CalEnviroScreen tool for identifying communities most disadvantaged by local pollution.

12. We support the Alternative Diesel Fuels proposal and encourage ARB to capture and monitor NOx benefits and potential impacts under the rule.

We support the Alternative Diesel Fuels proposal and believe it balances the need to encourage and incentivize alternatives to fossil fuels with the need to ensure that no additional harms are caused by these alternatives.

Because of the potential for biodiesel to increase smog-forming NO_x emissions under certain formulations, engine models, and operating conditions, we support the alternative diesel fuel pathway set forward by ARB staff.[15] To protect against NO_x backsliding under a growing biodiesel market, and as the widespread fleet turnover to NO_x-controlling engines is achieved, ARB must carefully capture the benefits of biodiesel, and monitor the benefits and potential impacts. Fortunately, the proposed ADF regulation looks for ways to maximize these benefits, including offering exemptions for biodiesel fueling stations or fleets using technologies that control NO_x. We strongly encourage ARB to explore additional opportunities to capture NO_x-neutral—and NO_x-reducing—particulate and carbon pollution benefits.

Taken together with the LCFS, the ADF will help to avoid nearly 100 deaths per year as cleaner alternatives to diesel are utilized in California.

[15] ARB January 2015 *Staff Report: Initial Statement of Reasons, Proposed Regulation on the Commercialization of Alternative Diesel Fuels*

In closing, we urge ARB to resist attempts to eliminate or weaken AB 32 fuel programs in California. Although the oil industry speaks with a loud voice, it does not speak for average Californians. The LCFS and California climate policies, in general, continue to enjoy broad public support, as evidenced in the annual Public Policy Institute of California poll, *Californians and their Environment*,[16] and other independent third-party research and opinion polls.

Climate policy solutions for the transportation sector are needed in California, in other states, across the nation, and around the world. ARB must continue its longstanding leadership role by sending a strong signal that California will not jeopardize the future health and environment of our state, our nation, or our planet for the sake of preserving the status quo. As Oregon, Washington, and other jurisdictions look to adopt and implement similar clean fuel standards, it is critical that ARB continue to build on this transformational policy by maintaining a strong, long-term signal and improving it in the areas identified in this letter.

Sincerely,

Bonnie Holmes-Gen and Will Barrett
American Lung Association in California

John Shears
Center for Energy Efficiency and Renewable Technologies

Tim O'Connor
Environmental Defense Fund

Barbara Bramble
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Simon Mui and Debbie Hammel
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[16] 76 percent - July 2014 PPIC poll